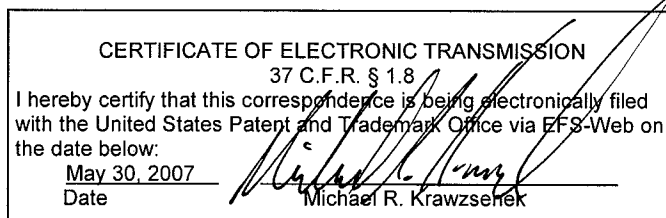


**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Title: CASING SYSTEM  
Appl. No.: 10/675,548  
Appellant: Stavenjord, Walter Karl  
Filed: September 30, 2003  
TC/A.U.: 3637  
Examiner: A, Phi Dieu Tran  
Docket No.: FMDM:002US  
Customer No.: 32425  
Confirmation No. 5963



**APPEAL BRIEF**

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**I. REAL PARTY IN INTEREST**

The real party in interest is the inventor Walter Karl Stavenjord.

**II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

**III. STATUS OF THE CLAIMS**

Claims 1-16 were originally filed. Claims 1, 3-4, 6-7, 9, 11-12, and 15 were amended in Response to an Office Action mailed on February 9, 2006.

Claims 1-16 are pending, stand rejected, and are appealed (see Claims Appendix).

**IV. STATUS OF AMENDMENTS**

No amendments to the claims or specification have been made by Appellant subsequent to the July 19, 2006 Final Office Action. A copy of the July 19, 2006 Final Office Action is attached as Evidence Appendix 1.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 is directed to a casing system that can be used to cover gaps between the framing of structural openings and installed amenities such as doors, windows, and the like in commercial and residential buildings and structures. The casing system includes a generally flat first casing piece adapted to cover gaps between framing members of structural openings and vertical walls in buildings, said casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear side edges and at least one of said linear end edges being provided with a continuous decorative profile; and a second casing piece also adapted to cover gaps between framing members of structural openings and vertical walls in buildings, said second casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear end edges being provided with a continuous decorative profile; whereby said first casing piece is adapted to be joined to

said second casing piece by engagement of said continuous decorative profile of said first casing piece with said reverse image of said decorative profile of said second casing piece. Non-limiting examples of support for independent claim 1 can be found in the specification at: page 4, line 24, to page 5, line 7.

Independent claim 12 is directed to a casing system that is adapted to cover gaps between framing members of structural openings and vertical walls in buildings. The casing system in claim 12 includes a first casing piece having side and end edges with said continuous decorative profile milled into said side and end edges; a second casing piece having side and end edges with said continuous decorative profile milled into its side edges and a reverse image of said continuous decorative profile milled into its end edges; whereby the first casing piece is adapted to be joined to the second casing piece by engagement with the continuous decorative profile milled into the edges of the first casing piece with the reverse image of said decorative profile milled into the edges of the second casing piece. Non-limiting examples of support for independent claim 1 can be found in the specification at: page 4, line 24, to page 5, line 7; page 5, line 22, to page 6, line 2.

Independent claim 15 concerns a kit of parts that can be used to form a casing system adapted to cover gaps between framing members of structural openings and vertical walls in buildings. The kit includes at least one generally flat first casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear side edges and at least one of said linear end edges being provided with a continuous decorative profile; and at least one second casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear end edges being provided with a reverse image of said decorative profile; whereby said first casing piece is adapted to be

joined to said second casing piece by engagement of said continuous decorative profile of said first casing piece with said reverse image of said decorative profile of said second casing piece. Non-limiting examples of support for independent claim 1 can be found in the specification at: page 4, line 24, to page 5, line 7; page 6, lines 11-13.

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 888,530 to Pugh (“Pugh”). A copy of Pugh is attached as Evidence Appendix 2.

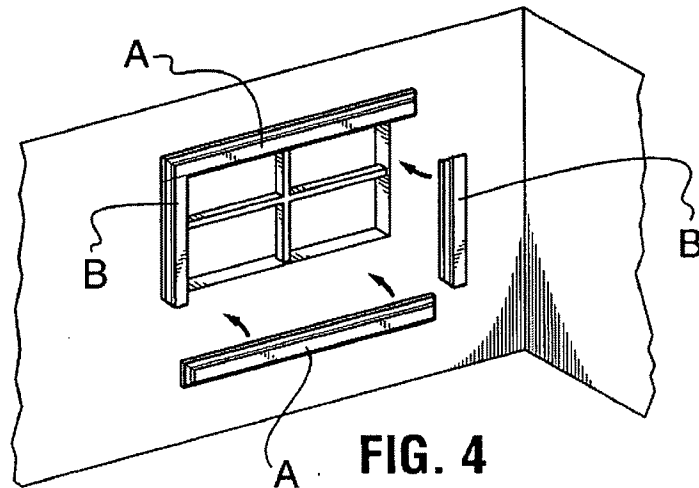
Claims 1-5, 7-8, and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,787,185 to Gascho (“Gascho”). A copy of Gascho is attached as Evidence Appendix 3.

Claim 16 is rejected under 35 U.S.C. § 103(a) as being obvious over Pugh.

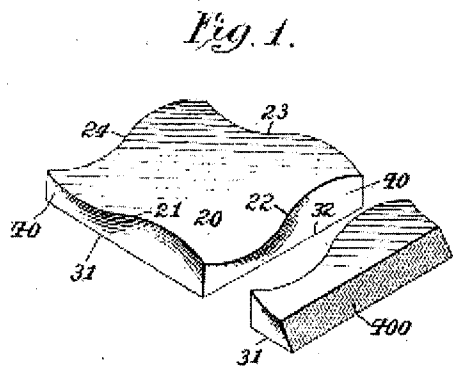
## **VII. ARGUMENT**

### **A. Summary of Appellant’s Arguments**

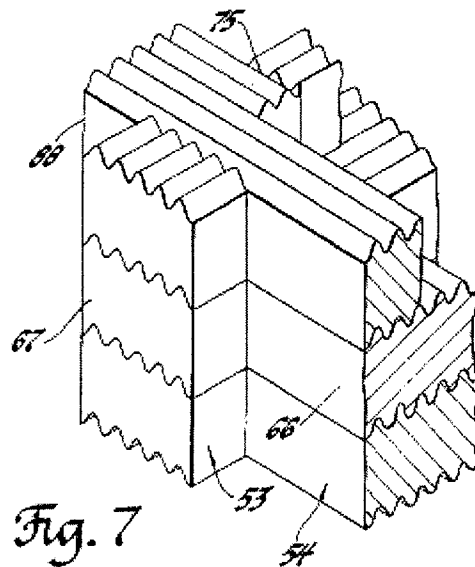
Appellant’s claimed casing system is “adapted to cover gaps between framing members of structural openings and vertical walls in buildings.” *See* claims 1, 12, and 15. FIG. 4 of Appellant’s specification illustrates a non-limiting embodiment of the present invention where first (A) and second (B) casing pieces are used to cover gaps between a window frame and a vertical wall in a building:



Throughout the prosecution of this application, the Examiner has consistently applied two art references in support of the anticipation and obviousness rejections that have no relationship to Appellant's claimed casing system. Rather, the cited references concern floor tiles (*i.e.*, Pugh) used to tile a floor and stackable logs that can be used to build a wall for a building such as a log cabin (*i.e.*, Gascho):



**Pugh Floor Tiles**



**Gascho Logs**

In an effort to overcome the obvious deficiencies of these references, the Examiner takes the position that Appellant's "adapted to" "language does not add any claimed structural limitation to the claims." Final Office Action at page 5 (Evidence Appendix 1). This position is improper and contrary to well-settled patent law. *Pac-Tec, Inc. v. Amerace Corp.*, 903 F.2d 796, 801 (Fed. Cir. 1990) (in determining whether a patent claim is anticipated by prior art, it is improper to disregard the preamble and all limitations that include "adapted to", "whereby", and "thereby" "so that the claims are reduced to mere collection of parts.").

When Appellant's "adapted to" language is properly considered, it becomes clear that both Pugh and Gascho fail to disclose Appellant's claimed casing system and casing pieces. As explained in the following sections in detail, the Pugh floor tiles and Gascho stackable logs do not have the structural features to be used in Appellant's claimed invention.

#### **B. Substantial Evidence Is Required to Uphold the Examiner's Position**

Findings of fact and conclusions of law by the U.S. Patent and Trademark Office must be made in accordance with the Administrative Procedure Act, 5 U.S.C. § 706(A), (E), 1994. *Dickinson v. Zurko*, 527 U.S. 150, 158 (1999). The Federal Circuit has held that findings of fact by the Board of Patent Appeals and Interferences must be supported by "substantial evidence" within the record. *In re Gartside*, 203 F.3d 1305, 1315 (Fed. Cir. 2000). In *In re Gartside*, the Federal Circuit stated that "the 'substantial evidence' standard asks whether a reasonable fact finder could have arrived at the agency's decision." *Id.* at 1312.

Accordingly, it necessarily follows that an Examiner's position on Appeal must be supported by "substantial evidence" within the record in order to be upheld by the Board of Patent Appeals and Interferences.

### C. Pugh Fails to Anticipate Claims 1-15

#### 1. A summary of the rejection

Claims 1-15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Pugh. The Examiner contends that Pugh discloses all of the elements recited in the rejected claims. This is done despite the fact that Pugh has nothing to do with casing systems, as it “relates to **tiles for floors**” (Pugh at page 1, col. 1, line 8 (Evidence Appendix 2) (emphasis added)) where “a surface composed of these tiles may be worn down to a thin layer without unlocking the vertical bond between the adjacent tiles” (Pugh at page 2, col. 1, lines 9-12).

The Examiner’s position appears to be based, in part, on his incorrect assertion that the following language in independent claims 1, 12, and 15 “does not add any claimed structural limitations to the claims”: “...adapted to cover gaps between framing members of structural openings and vertical walls in buildings.” Final Office Action at page 5 (Evidence Appendix 1). The Examiner also proffers the following unsupported statement in an effort to overcome the obvious deficiencies of Pugh:

Claims 1-15 are under 102 rejections, the references meet the structural limitations as claimed, and the references’ teachings are capable of performing the intended use. The references thus meet the claimed limitations. The argument is thus moot.

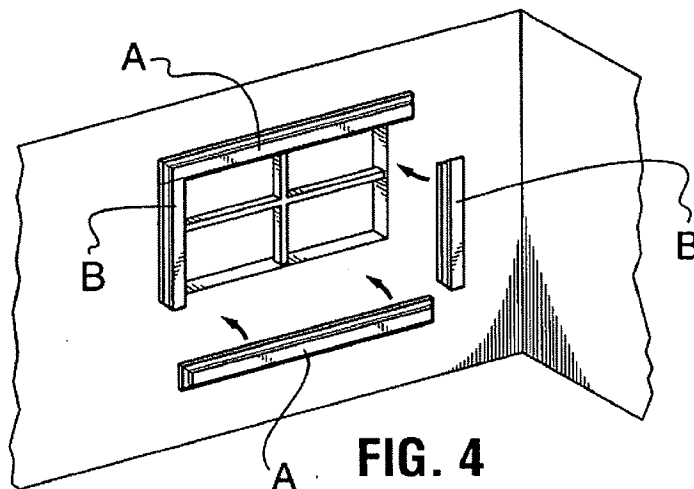
*Id.* This lone statement (which is supported by no evidence or explanation) is the **only** reasoning used by the Examiner to address Appellant’s claimed “adapted to” language. This lack of evidence dooms the anticipation rejection. *See In re Zurko*, 258 F.3d at 1386 (“...the Board cannot simply reach conclusions based on its own understanding or experience—or on its assessment what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.”); *see also In re Gartside*, 203 F.3d at 1315 (findings of fact must be supported by “substantial evidence”).



As explained in the following section, Appellant’s “adapted to” claim language is not an intended use limitation—it is a structural limitation that must be considered in the anticipation analysis. *See, e.g., In re Venezia*, 530 F.2d 956 (CCPA 1976); *see also Pac-Tec, Inc. v. Amerace Corp.*, 903 F.2d at 801 (in determining whether a patent claim is anticipated by prior art, it is improper to disregard the preamble and all limitations that include “adapted to”, “whereby”, and “thereby” “so that the claims are reduced to mere collection of parts.”). When this language is properly considered, it is clear that Pugh fails to anticipate Appellant’s claimed invention.

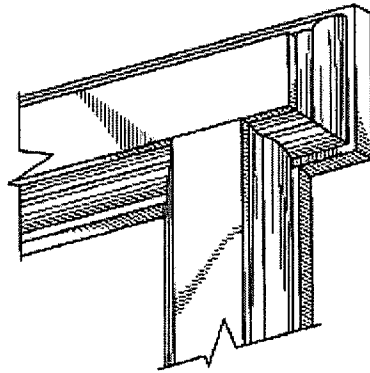
**2. A non-limiting explanation of why Appellant’s “adapted to” language is a structural feature of the claimed invention**

Independent claims 1, 12, and 15 include limitations directed to a first and second “casing piece” (claims 1 and 15) and a “casing system” (claim 12) that are “adapted to cover gaps between framing members of structural openings and vertical walls in buildings.” Appellant’s specification illustrates a non-limiting embodiment of this in FIG. 4A where first (A) and second (B) casing pieces are used to cover gaps between a window frame and a vertical wall in a building:



The “first casing piece is adapted to be joined to said second casing piece by engagement of said continuous decorative profile of said first casing piece with said reverse image of said decorative

profile of said second casing piece.” Claims 1 and 15; *see also* claim 12. This feature is illustrated in a non-limiting way in FIG. 3D of Appellant’s specification:



**FIG. 3D**

An advantage of Appellant’s invention in certain embodiments is that it “greatly reduces construction time required for installation of casings in residential and commercial buildings [and] yet enables fabrication of tightly fitted and aesthetically pleasing joints between abutted and joined casing pieces.” Specification at page 6, lines 7-9 (Evidence Appendix 4). Further, the casing system does not require specialized equipment or skills for its installation to cover gaps between window or door frames and walls. *Id.* at lines 4-6. It is also configured to interlock with a compatible casing system installed to cover the gaps between a door frame and the wall. *Id.*

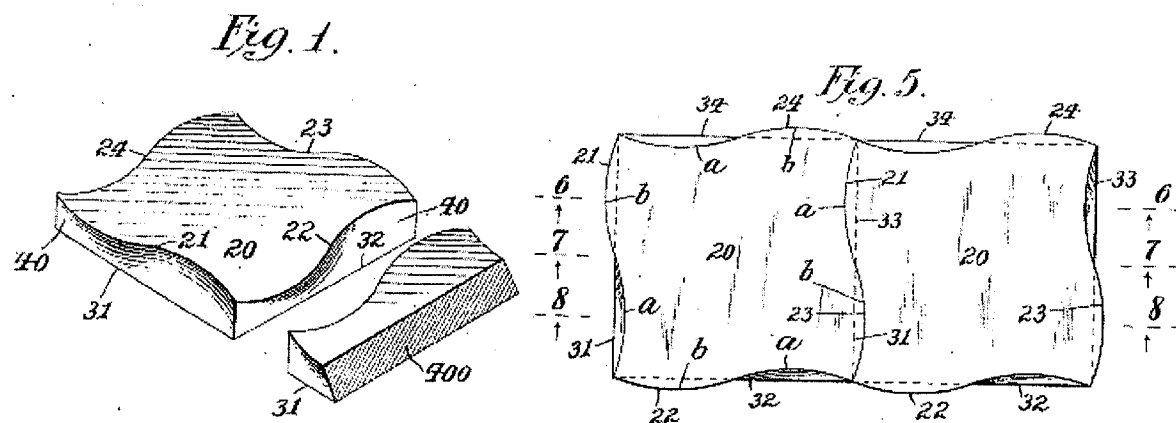
A result of Appellant’s claimed “adapted to” language is that any potentially anticipatory reference that discloses a floor tile (Pugh) or log (Gascho) must be capable of covering gaps between framing members of structural openings and vertical walls in buildings. These are attributes concerning the **structure** of Appellant’s claimed casing pieces and systems because they specify what the recited components must be able to do. *See In re Venezia*, 530 F.2d at 958-59 (reversing Board’s affirmance of an indefiniteness rejection concerning certain functional

language over the Board’s assertion that “no present positive structural relationships are recited[,]” and explaining that the disputed phrases—including “adapted to be” and “may be”—were limits on the **structure** of the claimed kit: “Again, a present structural configuration for the housing is defined in accordance with how the housing interrelates with the other structures in the completed assembly. We see nothing wrong in defining the structures of the components of the completed assembly in terms of the interrelationship of the components, or the attributes they must possess, in the completed assembly.”).

With this framework in mind, Appellant will address the anticipation and obviousness rejections based on the cited references.

**3. Pugh fails to disclose a “casing piece” or “casing system” “adapted to cover gaps between framing members of structural openings and vertical walls in buildings”**

Pugh’s floor tiles are not suitable for use in Appellant’s claimed casing pieces and system and, therefore, do not anticipated the claimed invention. Rather, Pugh describes a floor tile provided with continuously warped edges that incline inwardly then outwardly along each edge in a concave-convex pattern as best seen in FIGS. 1 and 5:



The pattern is repeated along all four edges with the result that each edge is a mirror image of the other edges thereby making it possible for one floor tile to be abutted against an adjacent floor

tile with a tight vertical and horizontal bond provided by the repeating concave-convex edge pattern (*see*, col. 1, lines 26-28 (Evidence Appendix 2)). This makes it more difficult for the floor tiles to become separated and a hazard for people to walk on (*see*, col. 1, lines 12-25). The decorative aspect of the Pugh floor tile is provided by wavy-line junctures formed between abutting adjacent tiles (*see, e.g.*, FIGS. 2, 9, and 17) as compared to the prior art floor tiles which had straight edges. *Id.* at col. 1., lines 8-52.

A person of ordinary skill in the art would not think to use the Pugh floor tiles as casing pieces to cover gaps between framing members of structural openings and vertical walls in buildings for several reasons. First, floor tiles are relatively thin with large flat-surface dimensions that are not suitable or amenable for use as casings on vertical walls. Second, both Pugh and the Examiner fail to disclose how to modify the Pugh floor tiles to use them as casing pieces to cover a gap between a framing member and a vertical wall of a building. Finally, the installation of floor tiles to cover gaps between window or door frames and vertical structural walls would require several tiles, and modifications to the same, which would require considerable skill and time for installation.

It is clear that the Pugh floor tiles are not capable of being used as casing pieces in their disclosed form. Because of this, Pugh fails to disclose every element of Appellant's claimed invention. *See Pac-Tec, Inc. v. Amerace Corp.*, 903 F.2d at 801. Therefore, Appellant requests that this rejection be withdrawn.

**D. Gascho Fails to Anticipate Claims 1-5, 7-8, and 10**

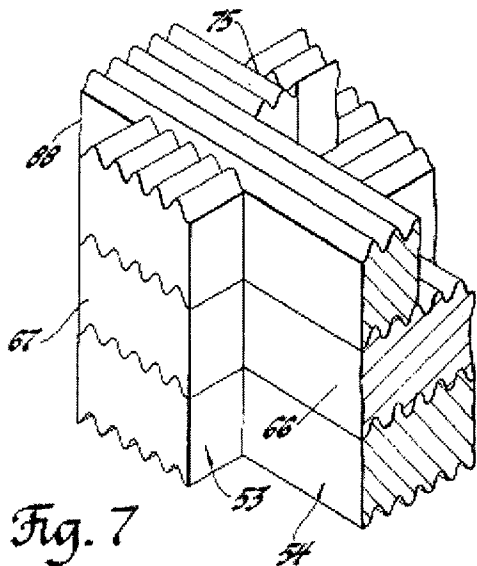
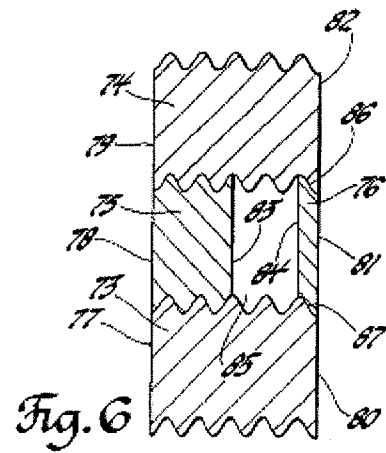
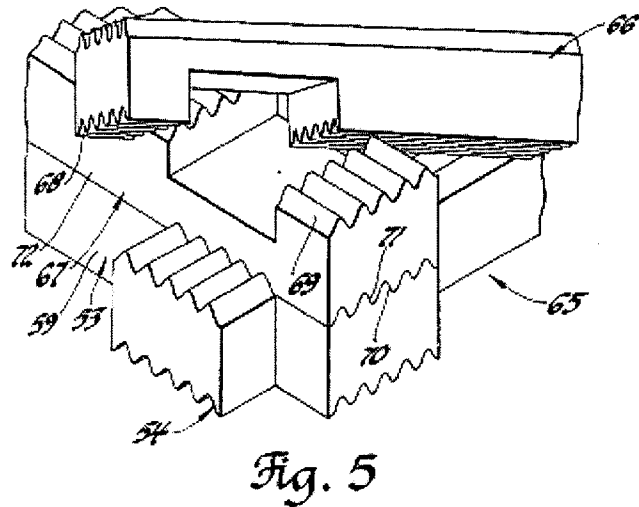
**1. A summary of the rejection**

Claims 1-5, 7-8, and 10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Gascho. The Examiner contends that Gascho discloses all of the elements recited in the rejected claims. This is done despite the fact that Gascho “relates to a unique log structure system” that is used to build walls for log cabins and has nothing to do with casing systems. Gascho at col. 1, lines 31-34 (Evidence Appendix 3). This anticipation rejection appears to be based **solely** on the Examiner’s position that Appellant’s “adapted to language “does not add any claimed structural limitations to the claims.” Final Office Action at page 5 (Evidence Appendix 1). The Examiner fails to even offer a conclusory statement that the Gascho logs are capable of being used as Appellant’s claimed casing pieces. *Id.*

Appellant disagrees with this rejection. As explained above, Appellant’s “adapted to” claim language is not an intended use limitation—it is a structural limitation that must be considered in the anticipation analysis. *See, e.g., In re Venezia*, 530 F.2d at 958-59. When this language is properly considered, it is clear that Gascho fails to anticipate the Appellant’s claimed invention.

**2. Gascho fails to disclose a “casing piece” or “casing system” “adapted to cover gaps between framing members of structural openings and vertical walls in buildings”**

It is undisputed that the Gascho logs are adapted to prepare walls for a log structure such as a log cabin or for retaining walls. *See* Gascho at col. 1, lines 6-32 and FIGS. 7-8. The logs are designed in such away that allows them to be stacked on top of one another. *Id.* at FIGS. 5-8. A stated advantage of these logs is that it can “provide an interlocked log structure through which water does not seep and which may be utilized in breakwater and below grade building construction.” *Id.* at col. 2, lines 17-20. Illustrations of the Gascho logs are provided below:



It is clear that the Gascho logs are not capable of being used as casing pieces in their disclosed form. Because of this, Gascho fails to disclose every element of Appellant's claimed invention. *See Pac-Tec, Inc. v. Amerace Corp.*, 903 F.2d at 801. Therefore, Appellant requests that this rejection be withdrawn.

**3. Gascho fails to disclose a "casing piece" with a "continuous decorative profile"**

Claim 1 recites, in part, a "first casing piece...provided with a continuous decorative profile; and a second casing piece...provided with a continuous decorative profile...."

Appellant's specification defines "decorative profile" as:

By the term decorative profile, I mean that a side edge or end edge (when viewed in cross-section) has a sloping surface extending from the outer face of the piece to the inner face of the piece. The sloping surface has a non-linear profile that preferably has at least two stages, each provided with a decorative profile. The decorative profile may be one of, or a combination of, a straight linear surface, a curved convex surface, or a curved concave surface.

Specification at page 5, lines 9-14 (Evidence Appendix 4).

The Gascho logs do not have a decorative profile as defined by Appellant. Rather, the function of the aligned ripples in the top and bottom surfaces of the logs is not decorative, but rather, serves to provide a very tight interlocking fit between stacked logs (col. 4, lines 8-9 (Evidence Appendix 3)) so that water and wind can not enter the interior of the log structure (col. 4, lines 24-26; *see also*, Fig 3, items, 43, 44, 45, 46, and 47).

#### **E. Pugh Fails to Render Claim 16 Obvious**

Claim 16 stands rejected under 35 U.S.C. § 103(a) as being obvious over Pugh. The Examiner contends that the claimed language “just requires an instruction for assembly of the parts, and Pugh as modified shows an instruction for the assembly of parts shown by Pugh.” Final Office Action at page 5.

Appellant disagrees for at least the following three reasons. First, it appears that the Examiner is reading out the claimed limitation that the “instructions for assembly of the parts” is instructions “to form a **casing**.” The Examiner’s interpretation of the claim is clearly improper. *See Pac-Tec, Inc. v. Amerace Corp.*, 903 F.2d at 801 (in determining whether a patent claim is obviated by prior art, it is improper to disregard the preamble and all limitations that include “adapted to”, “whereby”, and “thereby” “so that the claims are reduced to mere collection of parts.”). When the claimed language is properly considered, it is clear that Pugh fails to disclose instructions for assembling a casing. As explained in detail above, Pugh concerns floor tiles. It simply does not concern casings, much less instructions for assembling casings as claimed by Appellant. This is sufficient to overcome the obviousness rejection. MPEP 2143 (“To establish a *prima facie* case of obviousness...the prior art reference (or references when combined) must teach or suggest all the claim limitations.”).

Second, the Examiner fails to present any evidence, much less the required “substantial evidence” necessary to support this rejection on Appeal, that there is some “apparent reason” that a person of ordinary skill in the art would use the Pugh floor tiles as casings to cover gaps between framing members of structural openings and vertical walls in buildings. *See KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350, slip op. at 14 (U.S. April 30, 2007). If anything, the opposite is true—any instructions connected with Pugh would necessarily be instructions for installing floor tiles and **not** casing systems. Pugh at col. 1, lines 8-11 (“My invention relates to tiles for



floors and the like and its novelty consists in **the construction and adaptation of the parts**, as will be more fully hereinafter pointed out.”) (emphasis added) (Evidence Appendix 2).

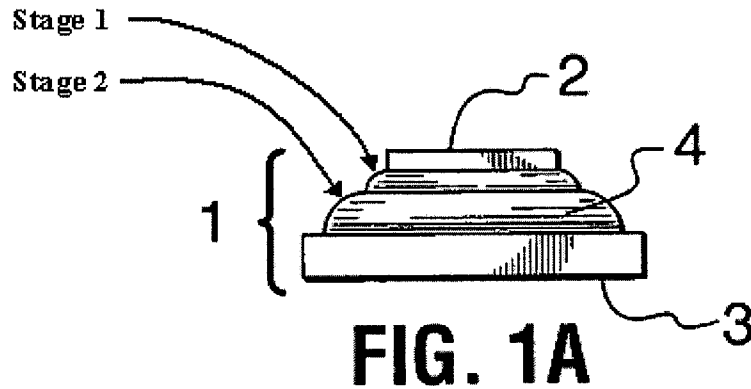
Third, it is improper to rely on Pugh to support the obviousness rejection, as Pugh is non-analogous art. *See* MPEP § 2141.01(a)(I) (“In order to rely on a reference as a basis for [an obvious] rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem, with which the inventor was concerned.”) (internal quotations and citations omitted). Pugh is not in Appellant’s field of endeavor (*i.e.*, casing systems)—it concerns floor tiles. Pugh is not reasonably pertinent to solving the particular problem with which Appellant was concerned (*i.e.*, to cover gaps between framing members of structural openings and vertical walls in buildings). Rather, Pugh is concerned with problems associated with floor tiles that cause “unsightly gaps in the floor design” which also creates “an open recess which cause[s] persons walking over the tiled surface to trip or fall.” Pugh at page 1, col. 1, lines 20-25 (Evidence Appendix 2).

It is clear that the obviousness rejection is without merit. Therefore, Appellant requests the Board to overturn this rejection.

**F. Dependent Claims 7 and 8 Are Separately Patentable**

**1. Claim 7 is separately patentable**

Claim 7 is currently rejected as being anticipated by Pugh. This claim is separately patentable over this reference. The claim is directed to the first casing piece and recites “wherein said decorative profile provided on said linear edges of said first casing piece comprises a sloping surface extending from said upper face to said lower face **in at least two stages**” (emphasis added). This is illustrated in a non-limiting way in at least FIG. 1A of Appellant’s specification (arrow and text added by Appellant):



The Pugh floor tiles fail to disclose a linear edge that slopes from the upper face to the lower face “in at least two stages.” Rather, these tiles have, at most, one stage that slopes from the upper face to the lower face of the tile. This is readily visible by looking at FIGS. 1 and 4 of Pugh (arrow and text added to FIG 4 by Appellant):

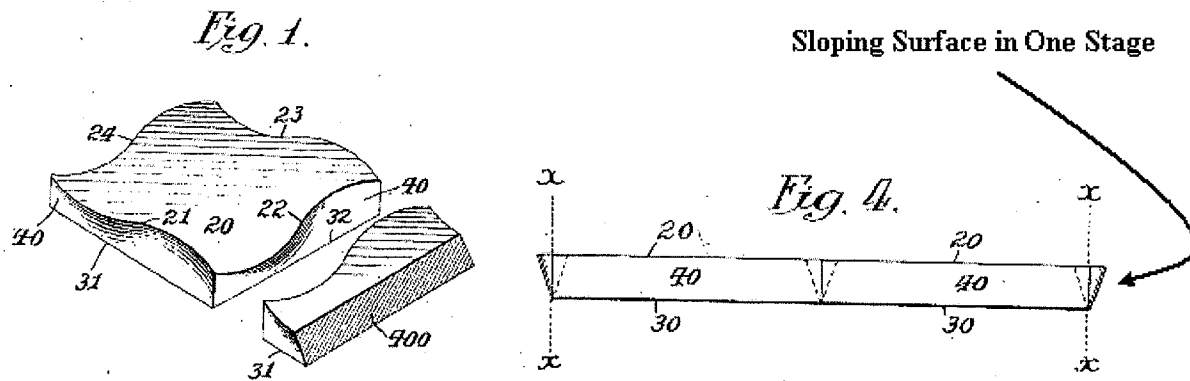


FIG. 4 is a front elevation view of FIG. 1 and shows a slope that extends from the top surface to the bottom surface of the floor tile in one continuous stage. Stated another way, there does not appear to be any disclosure of Appellant’s claimed two-stage sloping surface.

For at least this reason, dependent claim 7 is further patentable over the cited reference. If independent claim 1 falls, dependent claim 7 is separately patentable and not anticipated by Pugh.

## **2. Claim 8 is separately patentable**

Claim 8 is currently rejected as being anticipated by Pugh. This claim is separately patentable over this reference. The claim depends from claim 7, thereby making it separately patentable over Pugh for at least the same reasons discussed in the above section.

This claim is further patentable over Pugh because it recites additional elements as to the profile shape of the two stages: “[t]he casing system of claim 7, wherein each stage of said sloping surface comprises a profile selected from the group comprising a straight linear profile, a rounded convex profile, and a rounded concave profile.” This is illustrated in a non-limiting way in at least FIG. 3A of Appellant’s specification.

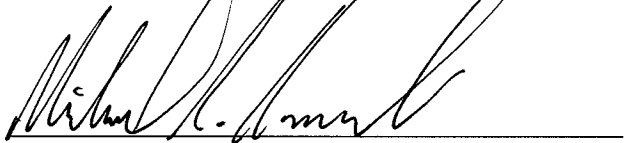
By comparison, the Pugh floor tiles have, at most, one stage that slopes from the upper face to the lower face of the tile. There is no apparent teaching in this reference of a profile that includes two stages having the claimed profile shapes. Again, this is readily visible by looking at FIGS. 1 and 4 of Pugh.

For at least this reason, dependent claim 8 is further patentable over the cited reference. If claims 1 or 7 fall, dependent claim 8 is separately patentable and not anticipated by Pugh.

**G. Conclusion**

Appellant has provided arguments that overcome the anticipation and obviousness rejections. The Examiner's conclusion that the claims should be rejected is unwarranted. Therefore, Appellant respectfully requests that the Board overturn the Examiner's rejection of claims 1-16.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael R. Krawzsenek", is written over a horizontal line.

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Dated: May 30, 2007

## VIII. CLAIMS APPENDIX

1. A casing system, comprising:
  - a generally flat first casing piece adapted to cover gaps between framing members of structural openings and vertical walls in buildings, said casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear side edges and at least one of said linear end edges being provided with a continuous decorative profile; and
  - a second casing piece also adapted to cover gaps between framing members of structural openings and vertical walls in buildings, said second casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear end edges being provided with a continuous decorative profile;whereby said first casing piece is adapted to be joined to said second casing piece by engagement of said continuous decorative profile of said first casing piece with said reverse image of said decorative profile of said second casing piece.
2. The casing system of claim 1, wherein both of said linear side edges of said first piece are provided with said decorative profile.
3. The casing system of claim 1, wherein both of said linear end edges of said first casing piece are provided with said decorative profile.
4. The casing system of claim 1, wherein at least one of said linear edges of said second casing piece is provided with said decorative profile.
5. The casing system of claim 1, wherein both of said linear end edges of said second casing piece are provided with said reverse image of said decorative profile.
6. The casing system of claim 2, wherein at least one linear end edge of said second casing piece is milled with said decorative profile and the other linear end edge is milled with a reverse image of said decorative profile.

7. The casing system of claim 1, wherein said decorative profile provided on said linear edges of said first casing piece comprises a sloping surface extending from said upper face to said lower face in at least two stages.
8. The casing system of claim 7, wherein each stage of said sloping surface comprises a profile selected from the group comprising a straight linear profile, a rounded convex profile, and a rounded concave profile.
9. The casing system of claim 1, wherein said outer face of said first casing piece has a decorative structure extending outwardly of said side and end edges.
10. The casing system of claim 1, further comprising at least one additional first casing piece and at least one additional second casing piece.
11. The casing system of claim 1, wherein said outer face of said second casing piece has a decorative structure extending inwardly of said end edges.
12. A casing system adapted to cover gaps between framing members of structural openings and vertical walls in buildings, the casing system comprising:
  - a first casing piece having side and end edges with said continuous decorative profile milled into said side and end edges;
  - a second casing piece having side and end edges with said continuous decorative profile milled into its side edges and a reverse image of said continuous decorative profile milled into its end edges;whereby the first casing piece is adapted to be joined to the second casing piece by engagement with the continuous decorative profile milled into the edges of the first casing piece with the reverse image of said decorative profile milled into the edges of the second casing piece.
13. The casing system of claim 12, wherein an end edge of the first casing piece is adjoined to the end edge of the second casing piece by means of engagement of the decorative profile milled into the end edge of the first casing piece with the reverse image of said decorative profile milled into the end edge of the second casing piece.

14. The casing system of claim 12, wherein a linear edge of the first casing piece is adjoined to the end edge of the second casing piece by means of engagement of the decorative profile milled into the end edge of the first casing piece with the reverse image of said decorative profile milled into the end edge of the second casing piece.
15. A kit of parts forming a casing system adapted to cover gaps between framing members of structural openings and vertical walls in buildings, the kit comprising at least one generally flat first casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear side edges and at least one of said linear end edges being provided with a continuous decorative profile; and at least one second casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of said linear end edges being provided with a reverse image of said decorative profile; whereby said first casing piece is adapted to be joined to said second casing piece by engagement of said continuous decorative profile of said first casing piece with said reverse image of said decorative profile of said second casing piece.
16. The kit of parts of claim 15, including instructions for assembly of the parts to form a casing.

## **IX. EVIDENCE APPENDIX**

1. July 19, 2006 Final Office Action from U.S. Application No. 10/675,548.
2. U.S. Patent No. 888,530 to Pugh – Cited by the Examiner in the First Office Action of February 9, 2006 and the Final Office Action of July 19, 2006.
3. U.S. Patent No. 4,787,185 to Gascho – Cited by the Examiner in the First Office Action of February 9, 2006 and the Final Office Action of July 19, 2006.
4. Specification for U.S. Application No. 10/675,548.



**EVIDENCE APPENDIX 1**  
**(July 19, 2006 Final Office Action)**



# UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,548	09/30/2003	Walter Karl Stavenjord	KEGB:003US	5963

32425 7590 07/19/2006  
FULBRIGHT & JAWORSKI L.L.P.  
600 CONGRESS AVE.  
SUITE 2400  
AUSTIN, TX 78701

EXAMINER

A, PHI DIEU TRAN

ART UNIT	PAPER NUMBER
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3637

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/675,548	STAVENJORD, WALTER KARL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Phi D. A	3637	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Pugh (888530).

Pugh (figure 5) shows a casing system comprising a generally flat first casing piece (20 left) having an outer face, an inner face, a pair of linear side edges (where 34, 24, 22, 32 locate), a pair of linear end edges (where 31, 21, 33 locate), at least one of the linear side edges and at least one of the linear end edges being provided with a continuous decorative profile (the curving and grooves), a second casing piece (20 right) having an outer face, an inner face, a pair of linear side edges (where 34, 24, 22, 32 locate) and a pair of linear end edges (where 31, 21, 33 locate), at least one of the linear end edges being provided with a reverse image of the continuous decorative profile, the first piece being adapted to be joined to the second piece by engagement of the profile of the first piece to the reverse image of the profile of the second piece, both of the linear side edges of the first piece being provided with the decorative profile, both the end edges of the first piece being provided with the decorative profile, at least one of the linear edges of the second piece being provided with the decorative profile, both the linear end edges of the second piece being provided with the reverse image of the profile, at least one linear end edge is milled with the decorative profile and the other linear edge is milled with a reverse with a reverse image of the decorative profile, the decorative profile comprising a sloping surface extending from the upper face to the lower face in at least two stages (per the curve of a and b), each stage (the first

stage being concave, the second stage being convex) of the sloping surface comprising a profile that is a convex profile and a concave profile, the outer face of the first piece having a decorative structure extending outwardly of the side and end edges (part 21 and part 23), at least one additional first casing piece and at least one additional second casing piece (inherently so as the casing piece 20 is lay continuously to cover a large surface), the upper face of the second piece having a decorative structure (where the top of part a is) extending inwardly of the end edges, an end edge of the first piece is adjoined to the end edge of the second piece by means of engagement of the decorative profile milled into the end edge of the first piece with the reverse image of the decorative profile milled into the end edge of the second piece.

3. Claims 1-5, 7-8, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Gascho (4787185).

Gascho (figure 4) shows a casing system comprising a generally flat first casing piece (top part) having an outer face (59), an inner face, a pair of linear side edges (where 70 is and the opposite side thereof) and a pair of linear end edges (the end faces of the top part), at least one of the linear side edge and at least one of the linear end edges being provided with a continuous decorative profile, a second piece (figure 4, the part as indicated by 54) having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of the linear end edges being provided with a reverse image of the continuous decorative profile (the reverse image of a flat surface is also a flat surface), both of the linear side edges of the first piece is provided with the decorative profile, both of the end edges of the first piece being provided with the decorative profile, at least one linear edges of the second piece being provided with the decorative profile, both of the linear end edges of the second piece being provided with the

reverse image of the decorative profile, the decorative profile comprising a sloping surface (figure 2 shows the sloping surfaces per 22 and 18) extending from the upper surface to the lower surface in at least two stages, each stage of the sloping surface comprising a profile that is a convex profile and a straight linear profile, at least one additional first casing piece and at least one additional second casing piece.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pugh.

Pugh shows all the claimed limitations except for an instruction for assembling the parts to form a casing.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Pugh to show an instruction for assembling the parts to form a casing because it is well known in the art to provide instructions for assembling and installing parts on site as such practice would allow users to easily assemble parts together.

***Response to Arguments***

6. Applicant's arguments filed 5/8/06 to claims 1-16 have been fully considered but they are not persuasive.

In response to applicant's argument that the references are not applicable as the floor tiles are not for covering the gaps between vertical wall and frameworks of doors or windows installed

therein, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The argument is thus moot.

Claims 1-15 are under 102 rejections, the references meet the structural limitations as claimed, and the references' teachings are capable of performing the intended use. The references thus meet the claimed limitations. The argument is thus moot.

With respect to applicant's statement that Gascho's features are not decorative, examiner respectfully sets forth that the ripples feature disclosed by Gascho is decorative; furthermore, whether or not a feature is "decorative" is subjected to a person's opinion, and many people would have many opinions of what would be considered "decorative". The argument is thus moot.

With respect to the added language of "adapted to.....", the added language does not add any claimed structural limitation to the claims. The claims are thus still rejectable by the references. The argument is thus moot.

With respect to claim 16, applicant states that a person of ordinary skill in the art would not be motivated by the disclosure of Pugh to refer to instructions for assembling and installing floor tiles for guidance on assembly and installation of casing pieces to cover gaps between vertical wall structures and frameworks of doors or windows installed therein, examiner respectfully set forth that claim 16 asks for instructions for assembly of the parts to form a casing. The claimed language does not require that the instructions being for assembling and installing floor tiles for guidance on assembly and installation of casing pieces to cover gaps

between vertical wall structures and frameworks of doors or windows installed therein. Rather the language just requires an instruction for assembly of the parts, and Pugh as modified shows an instruction for the assembly of parts shown by Pugh. The modification thus meets the limitations as claimed. The argument is thus moot.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phi D A whose telephone number is 571-272-6864. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lanna Mai can be reached on 571-272-6867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 3637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of a series of loops and a large circular flourish at the end.

Phi Dieu Tran A

7/12/06

**EVIDENCE APPENDIX 2**  
**(U.S. Patent 888,530 to Pugh)**

No. 888,530.

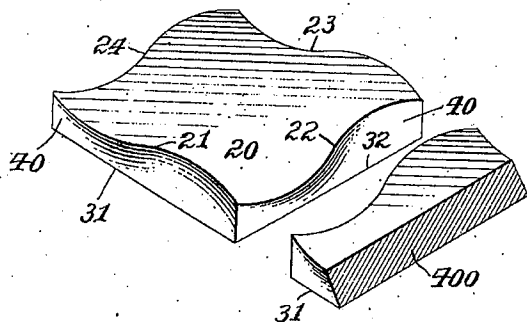
PATENTED MAY 26, 1908.

J. H. PUGH.  
TILE.

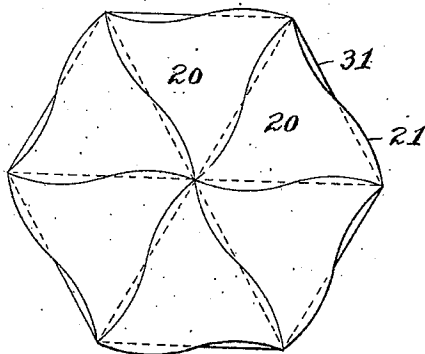
APPLICATION FILED JAN. 23, 1906.

3 SHEETS—SHEET 1.

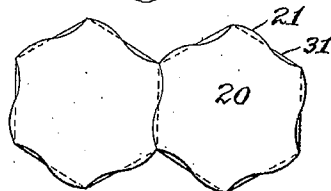
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Attest:

*May Hughes*  
*Claw Mc Donnell,*

*John H. Pugh, Inventor.*

*by William R. Baird*

*His Atty.*

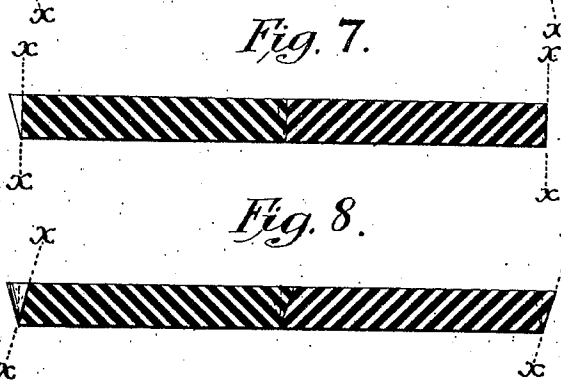
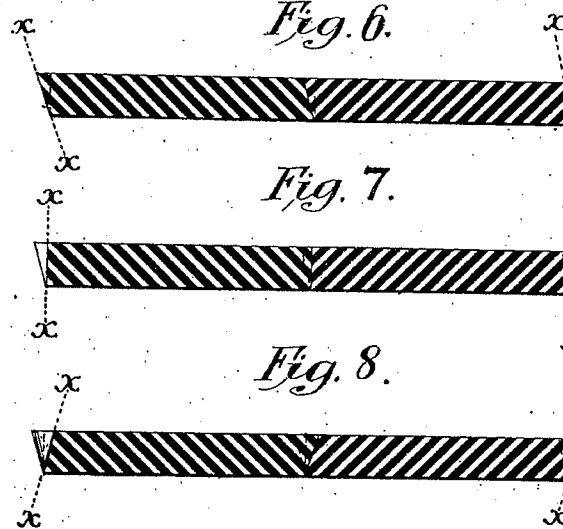
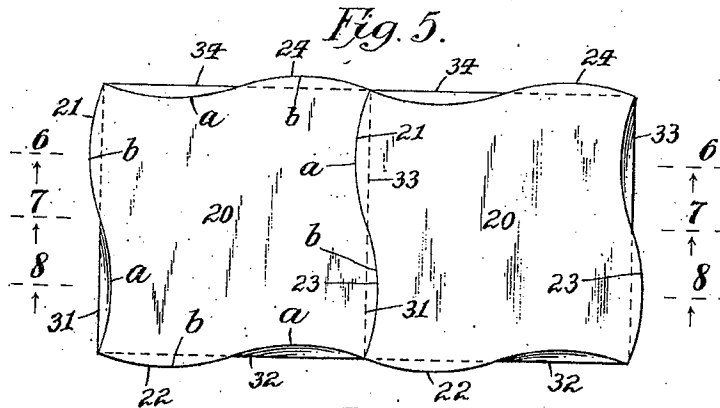
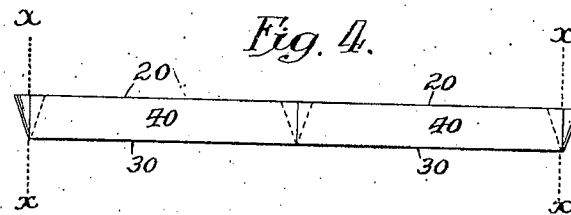
No. 888,530.

PATENTED MAY 26, 1906.

J. H. PUGH.  
TILE.

APPLICATION FILED JAN. 23, 1906.

3 SHEETS—SHEET 2.



Attest:  
May Hughes  
Allan Mc Donnell.

John H. Pugh, Inventor:  
by William R. Baird  
His Atty

No. 888,530.

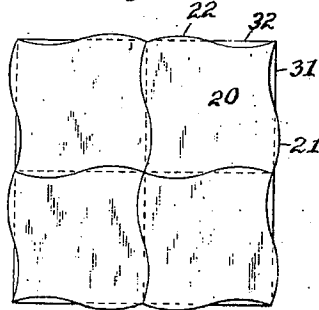
PATENTED MAY 26, 1908.

J. H. PUGH.  
TILE.

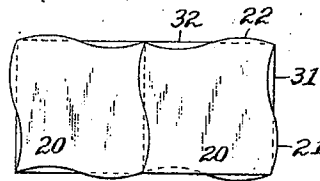
APPLICATION FILED JAN. 23, 1906.

3 SHEETS—SHEET 3.

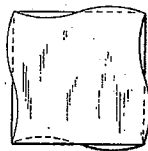
*Fig. 9.*



*Fig. 10.*



*Fig. 11.*



*Fig. 12.*



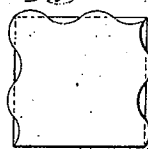
*Fig. 13.*



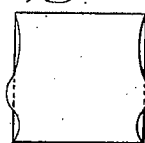
*Fig. 14.*



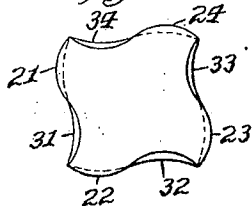
*Fig. 15.*



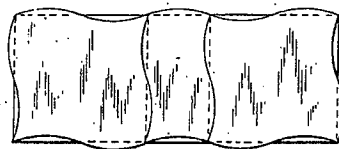
*Fig. 16.*



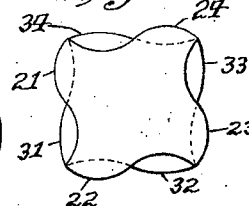
*Fig. 18.*



*Fig. 17.*



*Fig. 19.*



Attest:

*May Hughes*  
*Alan Mc Donnell.*

*John H. Pugh* Inventor:

*by William R. Baird*

*His Atty.*

# UNITED STATES PATENT OFFICE.

JOHN H. PUGH, OF NEW YORK, N. Y.

## TILE.

No. 888,630.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed January 23, 1906. Serial No. 297,415.

*To all whom it may concern:*

Be it known that I, JOHN H. PUGH, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Tiles, of which the following is a specification.

My invention relates to tiles for floors and the like and its novelty consists in the construction and adaptation of the parts, as will be more fully hereinafter pointed out.

Heretofore in the manufacture of tiles and especially of tiles made of rubber, while there has been little difficulty in making tiles of pleasing shapes and interchangeable forms with a strong horizontal bond, there has been difficulty in making tiles having a suitable vertical bond. The result has been that such tiles were secured to the floor or to each other with cement. In spite of this method, such tiles constantly worked loose and caused not only unsightly gaps in the floor design, but also made an open recess which caused persons walking over the tiled surface to trip or fall.

By means of my invention there is provided a simple form of tile having a vertical as well as a horizontal bond and one which is capable of arrangement into an infinite number of artistic designs.

The principle upon which my tiles are constructed is primarily to make them of plane surfaces, top and bottom, and with edges or butt walls of warped surfaces which, along any one edge shall project outwardly and recede inwardly from a surface coincident with the outline of the base but which is at right angles to both the top and bottom surfaces of the tile. The warped surfaces are formed by sweeping a line along the boundary lines of the top and bottom surfaces of the tile and always in a plane perpendicular to such top and bottom surfaces. Making such warped surfaces in adjacent tiles exactly the reverse of one of the other, a complete contact and registration is secured between them and making one half of any butt wall exactly the reverse of its other half enables the tiles to be used interchangeably with great ease and economy. The vertical bond between adjacent tiles is efficient and no cement need be employed in laying them.

In the drawings, Figure 1 is a perspective view of two of my tiles near each other, one having a plane edge; Fig. 2 is a top plan view of a number of tiles assembled, each tile having a substantially triangular outline; Fig. 3 is a top plan view of two tiles having a substantially hexagonal outline; Fig. 4 is a front elevation; Fig. 5 is a top plan view, and Figs. 6, 7 and 8 are vertical sections (on the planes of the lines 6—6, 7—7 and 8—8 in Fig. 5) of two contiguous tiles of a preferred form; Figs. 9, 10, 11, 12, 13, 14, 15, 16 and 17 are top plan views of tiles having upper surfaces of different outlines, but all having their lower surfaces bounded by straight lines. In Figs. 18 and 19 these surfaces are bounded by curved lines.

In the drawings, 20 is the upper surface, 30 the lower surface and 40 the edge or butt wall of a tile embodying my invention.

Referring more particularly to Figs. 1, 4, 6, 7 and 8 it will be observed that the upper surface 20 and the lower surface 30 of each tile are substantially parallel plane surfaces. In each case also the boundary lines of the lower surface 31, 32, 33 and 34 are straight lines and the boundary lines of the upper surface 21, 22, 23 and 24 are curved lines, and each of these curved lines are composed of an inwardly curving arc  $a$  and an outwardly curving arc  $b$ , these arcs being precisely similar and equal in length. It will also be observed that a plane perpendicular to the upper and lower surface of the tile and passing through the lines 31, 32, 33, and 34 would bisect the lines 21, 23, 23 and 24 is prolonged upward. The edges or butt walls 40 of each of these tiles are made of warped surfaces, made by sweeping an imaginary straight line  $x x$  in constant contact with the similarly placed boundary lines 31 and 21; 32 and 22; 33 and 23 and 34 and 24 and keeping the line  $x x$  always in a plane perpendicular to the plane of the upper and lower surfaces, 20 and 30, so that all transverse vertical sections of such butt wall are bounded by straight lines as seen in Figs. 6, 7 and 8. It follows then that if the upper and lower boundary lines of two adjacent tiles are identical, then the warped surfaces of their butt walls are identical. And if the upper boundary line projects both outward and inward from a ver-

tical surface passing through the lower boundary line of the one tile, it follows that the warped surface of the adjacent tile will, when brought into contact with the similar surface of its neighbor, underlap and overlap such surface and thus form between the two tiles a vertical bond, which, in all cases, is along a straight line and for the full depth of the tile. Consequently a surface composed of these tiles may be worn down to a thin layer without breaking the vertical bond between the adjacent tiles. Moreover, as the lines 21, 22, 23 and 24 are each identical, and the lines 31, 32, 33 and 34 are each identical, it follows that each tile will engage exactly with every side of its neighbor in the series. It will be seen also that so long as the abutting surfaces of the adjacent tiles are formed of warped surfaces of identical contour, but one the reverse of the other, then such adjacent tiles will have a perfect vertical bond provided along the junction surface, because part of it overlaps and part underlaps. Such constructions with surfaces of different outlines are shown in Figs. 2, 3, 9, 10, 11, 12, 13, 14 and 17, in each of which the boundary lines of the upper surfaces of the tiles are composed of reversed curves of identically equal arcs; and in Figs. 15 and 16, in which such curves are formed of eccentric arcs.

In Figs. 18 and 19 the lower and upper boundary lines are both curved, but the butt walls of adjacent surfaces would overlap and underlap just the same so long as the warped surface forming the butt wall falls on both sides of a vertical surface passing through the boundary line of the lower surface.

In Fig. 1 it will be observed that the smaller tile has one straight edge 400. This is for the purpose of placing the same against a subbase or flat wainscoting.

It is obvious that wide modifications may be made in the detail of my invention without departing from its essential principles. An infinite variety of patterns may be made and yet each tile may be vertically as well as horizontally bonded with its neighbor.

What I claim as new is:—

1. A tile having a butt wall formed of a warped surface which is inclined inwardly along part of its length and outwardly along another part of its length.

2. A tile having a butt wall formed of a continuous warped surface with alternating overlapping and underlapping faces inclined in opposite directions.

3. A tile having upper and lower surfaces which are substantially parallel and also having butt walls formed of warped surfaces each lying on both sides of a plane which is at right angles to the upper and lower surfaces.

4. A tile having upper and lower surfaces which are substantially parallel and also having butt walls formed of warped surfaces, each lying on both sides of a plane which is at right angles to the upper and lower surfaces and passes through the boundary lines of the lower surface.

5. A tile having a butt wall formed of a continuous warped surface with overlapping and underlapping faces, one of which has its surface inclined inwardly and the other inclined outwardly, one edge of said wall being curvilinear and the other of dissimilar shape.

6. A tile having edges of one face of angular conformation and edges of its other face of compound curve conformation and butt walls alternately inclined in opposite directions from one toward the other face of the tile.

7. A tile having upper and lower surfaces, one bounded by curved and the other by straight lines, and the side walls of which consist of warped surfaces made by sweeping a straight line along both of said boundary lines in constant contact therewith.

8. A tile having upper and lower surfaces, one bounded by curved and the other by straight lines, and the side walls of which consist of warped surfaces made by sweeping a straight line along both of said boundary lines in constant contact therewith and which straight line is at all times in a plane perpendicular to the upper and lower surfaces.

9. A tile having an upper and a lower surface one of which is bounded by compound curves and the other of which is bounded by straight lines, said tile also having butt walls which extend from the straight lines to the compound curves by continuous changes in direction.

10. A tile having butt walls composed of curved surfaces and bounded on one face of the tile by straight lines meeting at an angle, said butt walls at a corner of the tile being formed with faces which are inclined with respect to vertical planes passing through the lines of the edges of one face thereof.

11. A tile having an outer and an inner surface and a butt wall formed with a plurality of bonding elements which are curvilinear and each provided with an inclined face, the inclination of one of said faces being continuous in one direction approximately from one to the other of said surfaces and the inclination of the other of said faces being continuous in the opposite direction approximately from one to the other of said surfaces.

12. A tile having a butt wall formed of alternating convex and concave portions each having its face continuously inclined approximately from one to the other surface of the tile, the direction of inclination of one of said faces being opposite that of the other.

13. A tile having a butt wall formed of a  
warp surface inclined inwardly along part of  
its length and outwardly along another part  
of its length in combination with a second  
5 tile having a butt wall formed of a warped sur-  
face inclined in exactly the opposite direc-  
tion at each point to the wall of the first tile.

In testimony whereof I affix my signature  
in presence of two witnesses.

JOHN H. PUGH.

Witnesses:

MAY HUGHES,

ALAN McDONNELL.



**EVIDENCE APPENDIX 3**  
**(U.S. Patent 4,787,185 to Gascho)**

[54] **LOG STRUCTURES AND METHOD OF  
CONSTRUCTING SAME**

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Fairview, Mich. 48621

[21] **Appl. No.:** 347,706

[22] **Filed:** Feb. 11, 1982

[51] **Int. Cl.<sup>4</sup>** ..... E04B 1/10

[52] **U.S. Cl.** ..... 52/233; 52/747;  
52/593; 52/605; 405/284

[58] **Field of Search** ..... 52/233, 593, 605, 606,  
52/285, 286, 567, 568, 569, 566, 571, 221;  
405/31, 273, 284, 286

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

183,042	10/1876	Cummings	52/589
263,914	9/1882	Kern	52/605
979,913	12/1910	Ault	52/286
1,552,077	9/1925	Palanti	52/286
2,123,016	7/1938	McDaniel	405/273
2,462,289	9/1949	Rochon	52/605
3,189,950	6/1965	Johnson	52/233
3,521,417	7/1970	Onjukka	52/233
3,962,842	6/1976	Wilhelm	52/256
4,034,527	7/1977	Jalasjaa	52/233
4,047,350	9/1977	Chisum	52/233
4,126,977	11/1978	Chisum	52/233

**FOREIGN PATENT DOCUMENTS**

0063802	3/1914	Austria	52/566
0167177	3/1950	Austria	52/233
0645222	7/1962	Canada	52/233
80923	5/1963	France	52/590
1373787	8/1964	France	52/233
0044909	10/1917	Sweden	52/233
0374816	3/1964	Switzerland	52/233
0005502	of 1906	United Kingdom	52/233
0267772	3/1927	United Kingdom	52/593

1338575 11/1973 United Kingdom ..... 52/233

*Primary Examiner*—Carl D. Friedman

*Attorney, Agent, or Firm*—Learman & McCulloch

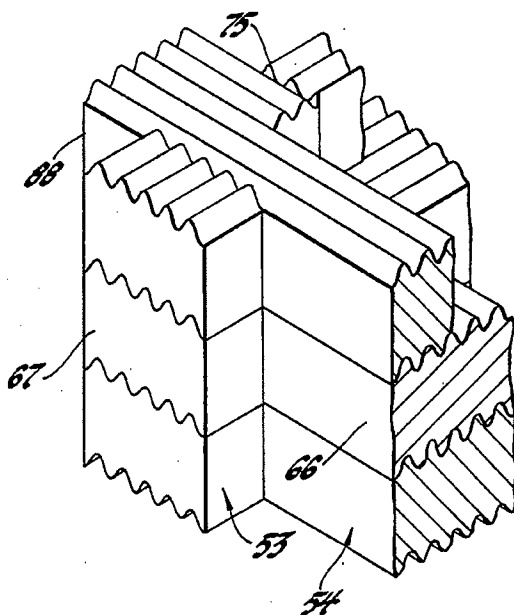
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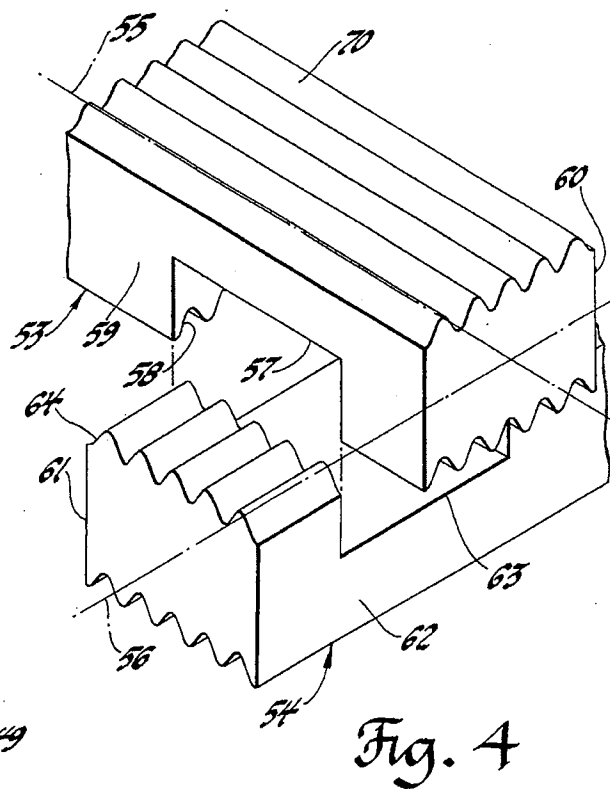
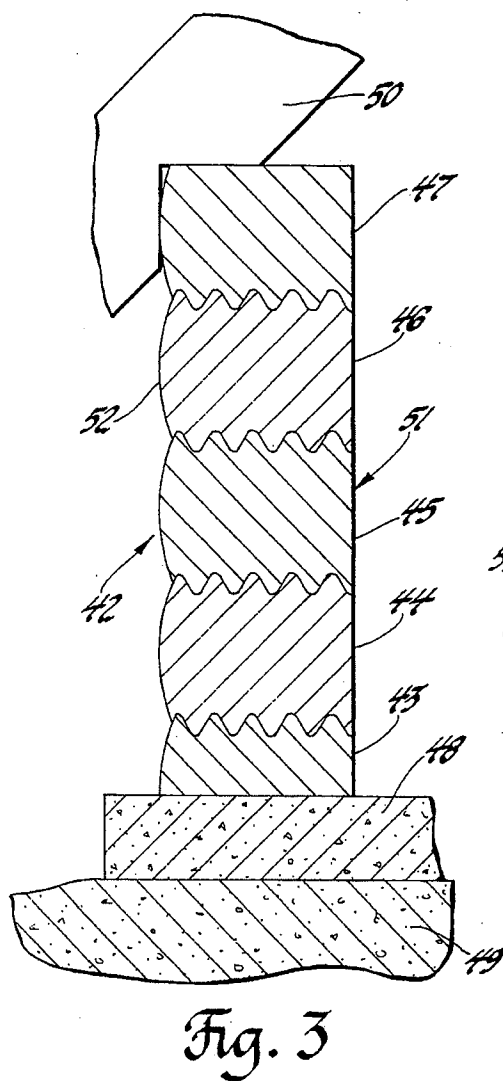
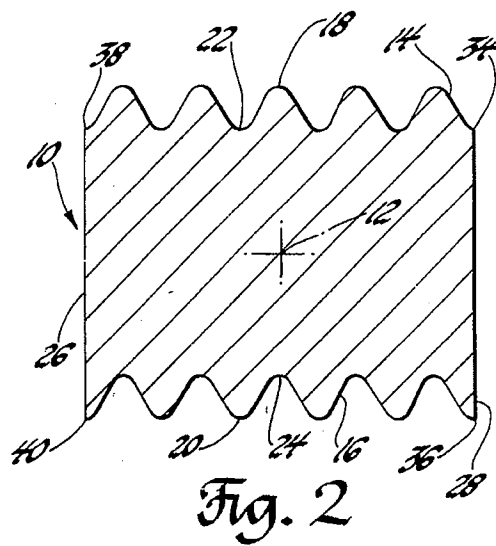
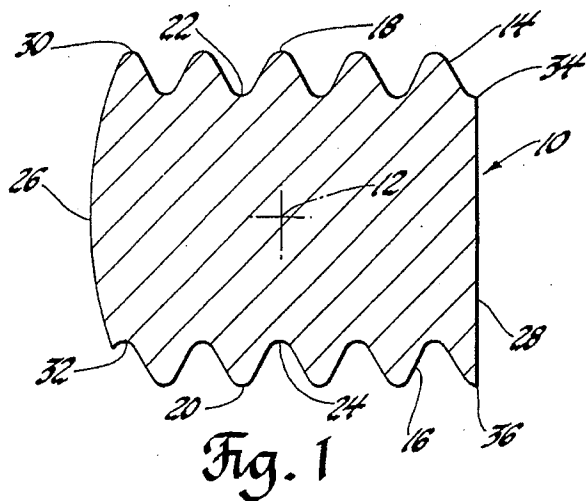
**ABSTRACT**

This invention relates to a unique log structure system and method of constructing same. An array of ripples is machined into parallel top and bottom surfaces of each log. The ripples are the same size, spacing and configuration and comprise peaks and valleys in the top ripple surface aligned with valleys and peaks, respectively, in the lower ripple surface. Logs are stacked with the top ripple surface of a lower log interlocked with a bottom ripple surface of an upper log. At the corners first and second logs are notched so as to interlock with their axes intersecting at a predetermined angle. Third and fourth logs are notched and interlocked at the structure corner with their axes also intersecting at the predetermined angle. The third and fourth logs are stacked on top of the first and second logs so their respective ripple surfaces interlock. Some logs are interlocked between other logs but with a narrower horizontal dimension so as to permit spaces between logs for wiring. Holes filled with sealant and additional notches aligning with the holes are formed in the logs perpendicular to the ripple surfaces where the logs are notched to prevent air passage through the notches. Additional ripple surfaces are provided on vertical surfaces of logs to facilitate butt and corner joining, particularly in logs of man-made materials.

The method includes the steps of forming upper and lower ripple surfaces in logs, stacking the logs, notching the logs, interlocking the notches, interlocking the ripple surfaces, forming holes through the logs at the interlocked notches, and filling the holes with sealant to prevent air flow through the notches.

**8 Claims, 3 Drawing Sheets**





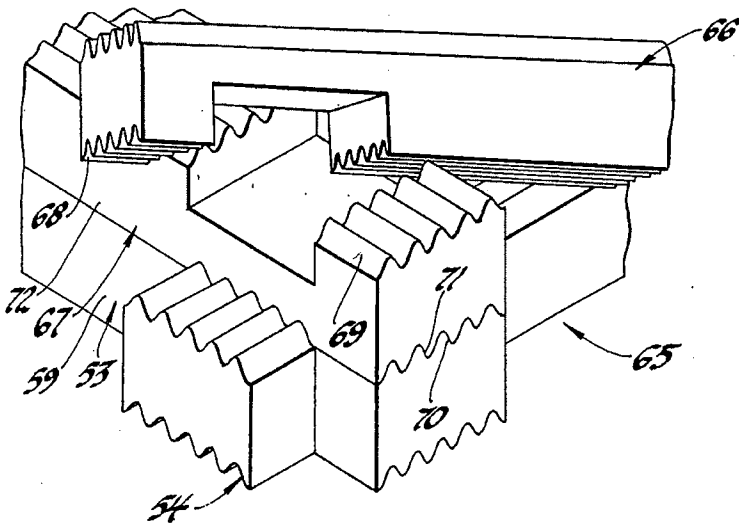


Fig. 5

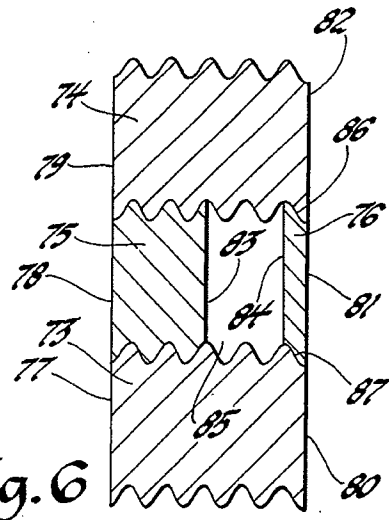


Fig. 6

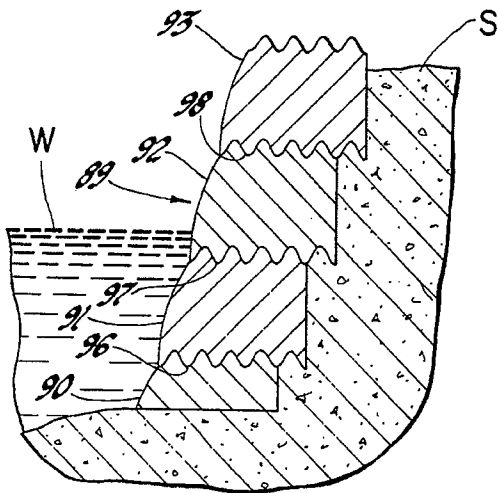


Fig. 8

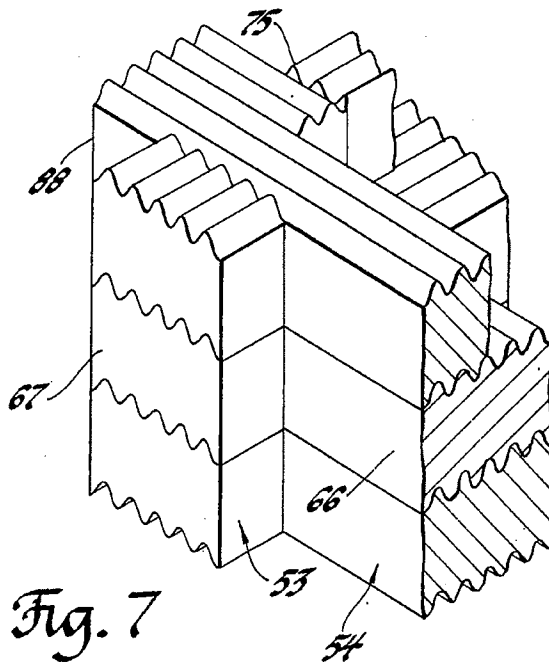


Fig. 7

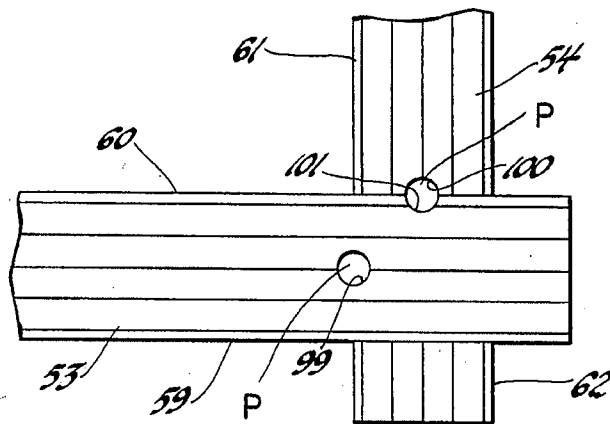


Fig. 9

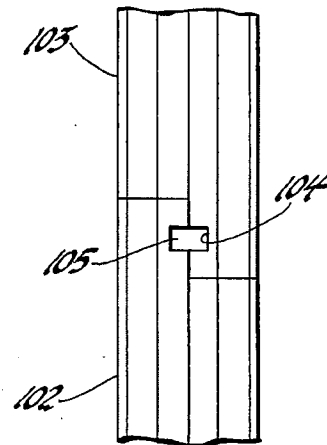


Fig. 10

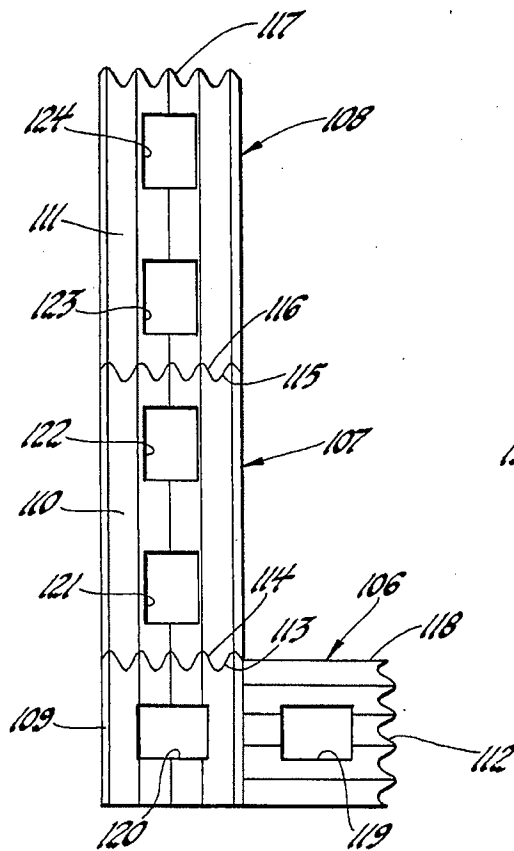


Fig. 11

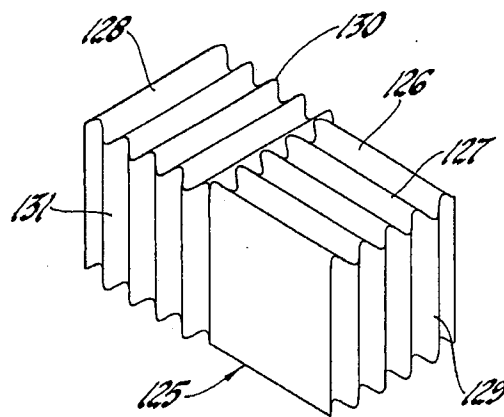


Fig. 12

## LOG STRUCTURES AND METHOD OF CONSTRUCTING SAME

### BACKGROUND OF THE INVENTION

The subject invention relates to unique log structures and the method of constructing same.

Log structures have been in common use for a great many years. Logs made of trees are irregular, leaving large gaps between logs which must be filled with caulk of some type. Modern machinery operations have enabled manufacturers to machine logs to uniform size and configurations, thereby reducing gap size between logs but still requiring caulking to provide a weather-tight seal between logs. Among such modern machined logs are those described in French Patent No. 1,373,787 and those described in the following U.S. Pat. Nos.: Ward, 1,942,348; Chisum 3,951,187; and Chisum 4,047,350, and Straight 3,473,277.

However, each of these prior art log structures suffer from one or more of the following disadvantages: caulking is still required between logs; different knives are required to form the upper and lower surfaces; water seepage between logs is not effectively prevented; interlocking log design employs sharp or angular configurations which easily break and prevent log alignment; at the corner of structures water and bees and other insects can enter cracks.

### SUMMARY OF THE INVENTION

This invention relates to a unique log structure system and method of constructing same. An array of ripples is machined into parallel top and bottom surfaces of each log. The ripples are the same size, spacing and configuration and comprise peaks and valleys in the top ripple surface aligned with valleys and peaks, respectively, in the lower ripple surface. Logs are stacked with the top ripple surface of a lower log interlocked with a bottom ripple surface of an upper log. At the corners first and second logs are notched so as to interlock with their axes intersecting at a predetermined angle. Third and fourth logs are notched and interlocked at the structure corner with their axes also intersecting at the predetermined angle. The third and fourth logs are stacked on top of the first and second logs so their respective ripple surfaces interlock. Some logs are interlocked between other logs but with a narrower horizontal dimension so as to permit spaces between logs for wiring. Holes filled with sealant and additional notches aligning with the holes are formed in the logs perpendicular to the ripple surfaces where the logs are notched to prevent air passage through the notches. Additional ripple surfaces are provided on vertical surfaces of logs to facilitate butt and corner joining, particularly in logs of man-made materials.

The method includes the steps of forming upper and lower ripple surfaces in logs, stacking the logs, notching the logs, interlocking the notches, interlocking the ripple surfaces, forming holes through the logs at the interlocked notches, and filling the holes with sealant to prevent air flow through the notches.

It is a primary object of this invention to provide a log structure and method of constructing same in which no caulk or sealant is required and may be rapidly constructed.

It is a further object of this invention to provide a log structure and method of constructing same in which knives of a single configuration are utilized to form

interlocking ripple surfaces on top and bottom log surfaces.

It is a further object of this invention to provide a log structure and method of constructing same in which an upper log exterior surface overlaps a lower log exterior surface to facilitate water runoff and prevent water intrusion.

It is a further object of this invention to provide an interlocked log structure which avoids the breaking of interlocking members and which permits self-alignment of even warped logs.

It is a further object of this invention to provide a log structure in which members are so tightly fitted that no water or bees can get in cracks between logs or at structure corners.

It is a further object of this invention to provide an interlocked log structure through which water does not seep and which may be utilized in breakwater and below grade building construction.

### BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects and advantages of this invention will be evidenced from the following description and the accompanying drawings, in which:

FIG. 1 is a cross-section of a log embodying the principles of the subject invention.

FIG. 2 is a cross-section of an alternative embodiment of the log in FIG. 1.

FIG. 3 is a cross-section of a log wall structure embodying the principles of this invention.

FIG. 4 is a perspective view of the intersection of two logs embodying the principles of this invention.

FIG. 5 is a perspective view of four logs embodying the principles of the subject invention at a corner.

FIG. 6 is a cross-section of a wall which includes four logs embodying the principles of the subject invention which provide an enclosed space within the wall.

FIG. 7 is a perspective view of a corner intersection of six logs embodying the principles of the subject invention.

FIG. 8 is a cross-section of a retaining wall comprised of logs embodying the principles of the subject invention.

FIG. 9 is a plan view of a corner intersection of two logs embodying the principles of the subject invention.

FIG. 10 is a plan view of a butt intersection of two logs embodying the principles of the subject invention.

FIG. 11 is a corner plan view of three logs embodying the principles of the subject invention in an alternative embodiment.

FIG. 12 is a perspective view of a log for use in corners in an alternative embodiment of the subject invention.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings as the subject invention may be practiced in other embodiments. It is further to be understood that the terminology employed in this description is employed to teach persons skilled in the art and is not intended to be limiting as to the embodiments in which the invention may be practiced.

As shown in FIG. 1, a log 10 is illustrated in cross-section embodying the principles of the subject invention. While logs used in structures are commonly made of wood timbers, persons versed in the art will appreciate that plastic, concrete and other man-made materials may be employed to practice the subject invention. The log 10 may be defined as an elongated member having a longitudinal axis 12. Top and bottom ripple surfaces 14 and 16 are formed in the log 10 for purposes which will become apparent. Each of the ripple surfaces 14 and 16 contain an array of peaks and valleys. For purposes of description, a peak is defined to be a point on the top ripple surface 14 or bottom ripple surface 16 which is farthest away from the center of the log 10. A valley is defined to be a point on the top ripple surface 14 or the bottom ripple surface 16 which is nearest the center of the log 10. For example, peaks 18 and 20 are identified in FIG. 1 in the top and bottom ripple surfaces 14 and 16 while valleys 22 and 24 are identified in the top and bottom ripple surfaces 14 and 16, respectively.

The peaks and valleys in the top ripple surface 14 are of the same size, spacing and configuration as the peaks and valleys in the bottom ripple surface 16. In the preferred embodiments illustrated herein, the peaks and valleys of the top ripple surface 14 are aligned with the valleys and peaks, respectively, of the bottom ripple surface 16. For example, peak 18 is directly above valley 24 and valley 22 is directly above peak 20.

The top ripple surface 14 may be defined by a plane which is parallel to the longitudinal axis 12. Such a plane is positioned midway between the peaks and valleys of top ripple surface 14. Bottom ripple surface 16 is similarly defined by a plane parallel to the longitudinal axis 12 which is positioned midway between the peaks and valleys of bottom ripple surface 16. The planes which define the top and bottom ripple surfaces 14 and 16 are parallel and in the preferred embodiment are horizontal, although persons versed in the art could practice the subject invention by having the planes parallel but not horizontal. In the preferred embodiment the log 10 also has first and second side walls 26 and 28 which when the log 10 is used in a structure will be exterior and interior surfaces, respectively. For reasons which will become apparent, the exterior side wall 26 intersects the top ripple surface 14 proximate peak 30 and intersects bottom ripple surface 16 proximate valley 32. Similarly the interior side wall 28 intersects top ripple surface at a valley 34 and intersects bottom ripple surface 16 at a peak 36. The interior side wall 28 in the preferred embodiment is defined by a plane which is perpendicular to the planes which describe the top and bottom ripple surfaces 14 and 16 and is substantially parallel with a plane describing the exterior side wall 26 with the side walls being on opposite sides of the longitudinal axis 12.

Persons versed in the art will appreciate that many people enjoy the aesthetic appearance of a log cabin having a rounded exterior surface 26. However, to fully utilize this invention it is preferred that the exterior side wall 26 be flat and parallel to side wall 28 and perpendicular to the planes which describe the top and bottom ripple surfaces 14 and 16 as illustrated in FIG. 2. It should be noted in FIG. 2 that the exterior wall 26 intersects the top ripple surface 14 at a valley 38 and intersects the bottom ripple 16 at a peak 40.

In FIG. 3 a log structure generally illustrated at 42 is shown in cross-section comprising a series of logs 43-47 which each have the cross-section of the log 10 except for the log 43 which has been cut lengthwise to provide

a flat bottom surface that sits on a concrete slab 48 that in turn rests on the ground 49. A rafter 50 is partially illustrated simply to show an object supported by the log structure 42, though persons versed in the art will appreciate that many other objects and rafter configurations may be supported by the log structure 42 in place of the rafter 50. Upon examination of the log structure 42, it is apparent that a very tight fit is formed between each of the logs 43-47. In FIG. 3, the interior side walls of each of the logs 43-47 abut to form a smooth interior wall 51 with the interior wall of each of the logs 43-47 in perfect alignment in a single plane.

The exterior wall 52 of the log structure 42 is not flat because the exterior surface of the logs 43-47 are slightly curved to give the aesthetically pleasing appearance of a log cabin. However, the exterior wall 52 is watertight because at each junction between the logs 43-47 the exterior surface of the log on top of the junction overlaps the exterior surface of the log below the junction, each of the logs 43-47 having a cross-section like log 10 in FIG. 1, in which exterior side wall 26 intersects top ripple surface 14 proximate peak 30 and intersects bottom ripple surface 16 proximate valley 32. Any water or wind entering between logs 43-47 can't cross several peaks and valleys so can't enter the structure interior.

In the preferred embodiment, each half inch radius is used at each peak and valley of the top and bottom ripple surfaces faces 14 and 16 with a seven-eighth inch vertical dimension from the tops of the peaks to the bottoms of the valleys and these dimensions are the preferred dimensions in each of the ripple surfaces in the preferred embodiments described herein. In the embodiments illustrated in the drawings, the tops of the peaks and the bottoms of the valleys may be defined as each having an axis parallel to the longitudinal axis of the log in which it is located. However, wooden logs tend to warp even if they are precisely machined and chemically treated. The aforementioned radius on the peaks and the valleys of the ripple surfaces has been deliberately selected to overcome problems created by this warpage.

If any of the logs 43-47 warp their longitudinal axis curves and the peaks and valleys which are to interlock so as to form the log structure 42 are not aligned. If the peaks and valleys were to have sharp edges of the type which would exist if the peaks and valleys were of triangular configuration or rectangular configuration, these sharp edges would be easily dented or broken when trying to place a warped log on a straight log. Such dents or broken pieces would prevent the logs 43-47 being tightly sealed as illustrated in FIG. 3, thus changing alignment of the log structure 42 and requiring caulking to seal any air gaps between the logs 43-47. However, by using the aforementioned radius at the peaks and valleys, the logs are self-aligning and the peaks are sturdy so that when placing a warped log on a straight log it is a simple matter to bend the warped log into position with the peaks and valleys between the logs bringing the logs into self-alignment without breaking or denting the peaks. In assembling the log structure 42 if any of the logs 43-47 are so warped as to not stay in position when brought into alignment with a straight log a few nails or spikes can be driven through the warped log into the straight log to hold them in alignment while the balance of the log structure 42 is erected without using any glue or caulk whatsoever in the construction, which is rapid pre-cut component assembly.

As shown in FIG. 4, a first log 53 may be joined at a corner of a log structure to a second log 54. This is easiest when their cross-sections are like the log 10 in FIG. 2, though logs having a cross-section like the log 10 in FIG. 1 may be joined in a similar manner using curved blades to notch the logs and using half round logs. Without limiting this invention for purposes of this description logs will be described in which first and second side walls 26 and 28 are flat and parallel as in FIG. 2.

In FIG. 4 the first log 53 is defined by a longitudinal axis 55 and the second log 54 is defined by a longitudinal axis 56 similar to the axis 12 in FIG. 2. A rectangular notch 57 is cut in the bottom ripple surface 58 of the first log 53. The depth of the notch 57 is to the longitudinal axis 55 and its length is from the exterior wall 59 to the interior wall 60. The width of the notch 57 is predetermined to be substantially equal to the distance between the exterior side wall 62 to the interior side wall 61 of the second log 54. In a similar manner a notch 63 is cut in a top ripple surface 64 of the second log 54 to the depth of the longitudinal axis 56. The length of the notch 63 is equal to the distance between the exterior side wall 62 and the interior side wall 61 while the width of the notch 63 is equal to the distance between exterior side wall 59 and interior side wall 60 of the first log 53.

As shown in FIG. 4, the notches 57 and 63 are positioned in the preferred embodiment to interlock so when the first log 53 is put down on the second log 54 as illustrated in FIG. 4 the longitudinal axes 55 and 56 intersect at right angles. Persons versed in the art will appreciate, however, that the first and second logs 53 and 54 could be notched differently to intersect at a predetermined angle other than the preferred angle of a right angle positioning so long as the area of the notches cut in the respective logs 53 and 54 correspond to the area by which the other log is overlapped.

As shown in FIG. 5, a log structure 65 is indicated to show the unique interlocking relationship of the logs in the subject invention at a corner. In FIG. 5, a first pair of logs on the bottom is comprised of the first and second logs 53 and 54 described in detail in FIG. 4. The log structure 65 also include third and fourth logs 66 and 67 which comprise a second pair of logs on top of the first pair of logs 53 and 54. The third log 66 is notched through its bottom ripple surface 68 similar to the notch described in the first log 53 while the fourth log 67 is notched in its top ripple surface 69 similar to the notch described previously in the second log 54. Accordingly, when the notches of the third and fourth log 66 and 67 are interlocked, the top ripple surface 64 of the second log 54 interlocks with the bottom ripple surface 68 of the third log 66. Similarly, the top ripple surface 70 of the first log 53 interlocks with the bottom ripple surface 71 of the fourth log 67. The exterior side wall 59 of the first log 53 thus abuts the exterior side wall 72 of the fourth log 67 and are in the same plane. It is similarly apparent that the exterior side walls of the second and third logs 54 and 66 align in a single plane and that the interior side walls of the first and fourth logs 53 and 67 align in a single plane and the same is true of the interior side walls of the second and third logs 54 and 66.

Persons versed in the art will appreciate that besides building a solid wall it is necessary to allow for lumbering and wiring in the walls of many log structures. A log structure embodying the principles of the subject invention can easily provide such a space shown in FIG. 6. As shown in FIG. 6, first and second logs 73 and 74

have the same cross-section dimensions. A third log 75 and a fourth log 76 are provided between the first and second logs 73 and 74. All four of the logs 73-76 have ripple top and bottom surfaces that are interlocked as shown in FIG. 6 as described in connection with previous figures. In FIG. 6, the exterior side walls 77-79 all lie in a first plane and interior side walls 80-82 all lie in a second plane. The sum of the thicknesses of the third log 75 from its exterior side wall 78 to its interior side wall 83 added to the thickness of the fourth log 76 from its interior side wall 81 to its exterior side wall 84 is less than the thickness of the first and second logs 73 and 74 from their respective exterior side wall 77 and 79 to their interior side walls 80 and 82. Accordingly, a space 85 exists between the third log 75 and the fourth log 76.

It will be noted in FIG. 6 that the exterior side wall 84 of the fourth log 76 intersects the top ripple surface 86 of the fourth log 76 proximate a peak and intersects the bottom ripple surface 87 of the with log 76 proximate a valley and that the fourth log 76 top and bottom ripple surfaces 86 and 87 each include only a single peak and a single valley. The fourth log 76 may thus be removed from between the first and second logs 73 and 74 without moving any of the other logs in FIG. 6 by pulling the fourth log 76 at right angles to its longitudinal axis in the direction of its interior side wall 81. This permits adding plumbing and wiring in the space 85. When such additions are completed, the fourth log 76 may be replaced between first and second logs 73 and 74 by sliding the peak of its top ripple surface 86 into the first valley of the bottom ripple surface of the second log 74 and then striking the interior side wall 81 to force the valley of bottom ripple surface 87 into alignment with the first peak of the first log 73 top ripple surface. Electrical outlets and plumbing connections to objects in the space 85 can thus be made through the fourth log 76 by cutting suitable holes in log 76.

FIG. 7 shows the third log 75 and a similar log 88 are notched and interlocked at a corner as previously described and put on the four logs 53, 54, 66 and 67 so their respective ripple surfaces interlock and the exterior surfaces of logs 53, 67 and 75 align in on plane and exterior surfaces of logs 54, 66 and 88 align in another plane. The exterior exposed ends 132 and 133 of logs 75 and 88 have the same width as logs 67 and 66 for a uniform log exterior appearance. It is apparent that if the log 76 and a log similar to it are put on logs 67 and 66 in FIG. 7 as in FIG. 6 all interior log surfaces in each structure wall align in a single plane.

The logs described in the preceding figures have particular utility in log structures used as part of buildings. As shown in FIG. 8, an ideal retaining wall 89 can also be made from logs 90-93 which embody the spirit of the subject invention. In FIG. 8, the retaining wall 89 is a breakwater used to prevent water W from eroding soil S on the opposite side of the breakwater 89. In the embodiment illustrated in FIG. 8, the top ripple surface of each of the logs 90-93 are beveled so the exterior side wall of each log 90-93 on the side of the water intersects its top ripple surface at a valley aligned with the second peak 96 in the bottom ripple surface of the logs 91-93, so the exterior surfaces of the logs 91-93 are aligned with a valley in the bottom ripple surface of the respective logs 91-93. Persons versed in the art will appreciate that when wood is exposed to moisture it expands. Accordingly, if the logs 90-93 in FIG. 8 are made of wood and a small amount of moisture should happen to enter the location where the logs 90-93 are interlocked at



their respective ripple surfaces, the moisture will cause the adjacent wood to expand and provide an even tighter seal so as to prevent additional moisture getting between the logs 90-93. Persons versed in the art will appreciate that the logs 90-93 could be used on dry land as a retaining wall, such as in a flower box rather than in a breakwater where one side frequently is immersed in water.

Persons versed in the art will appreciate that at the corners where logs are notched and intersected as described in FIGS. 4, 5, and 8 the log notches have to be cut slightly larger than the thickness of the logs inserted in the notches so as to permit assembly with a minimum amount of friction resisting the assembly. Accordingly, there may be a small opening at the notches through which air, water and insects may pass. FIG. 9 is a top view of the intersection of first and second logs 53 and 54 described in FIG. 4. As shown in FIG. 9, air may pass from exterior side wall 59 of first log 53 down the interior side wall 61 of second log 54 through the notch 57 previously described. Similarly, air may pass from exterior side wall 62 of second log 54 through the notch 63 along interior side wall 60 of first log 53. This air flow, and any corresponding water or insect passage is prevented by forming a hole 99 in the top ripple surface 70 of first log 53 so it is aligned with interior side wall 61 of second log 54. A corresponding notch (not shown) in interior side wall 61 of second log 54 is made so as to align with the hole 99. Similarly, a hole 100 is formed in second log 54 so as to align with interior side wall 60 at first log 53 and a corresponding notch 101 is made in first log 53 to align with the hole 100. The holes 99 and 100 are then filled with a suitable sealant such as a plastic, polystyrene, silicone or rubber foam or caulk P.

Persons versed in the art will appreciate that from time to time a log structure may be longer than any available logs. As shown in FIG. 10, two logs 102 and 103 may be butt joined as shown in this plan view with their respective peaks and valleys positioned so the respective axes are in alignment. The logs 102 and 103 are cut by a dado and an appropriate key 105 inserted in the dado cut so as to maintain alignment of the logs 102 and 103 while providing an effective seal to prevent air, water and insects passing through the butt joint.

While the subject invention readily lends itself to logs made of concrete, plastic and other man-made materials, some such logs may be more easily handled in a somewhat different length than conventional wooden logs. Such logs are illustrated in FIGS. 11 and 12.

As shown in FIG. 11, logs 106-108 are provided with ripple top surfaces 109-111 which each are illustrated as being horizontal in this top plan view. Logs 106-108 also have various vertical ripple surfaces in planes perpendicular to the planes where the ripple top surfaces 109-111 are located.

In FIG. 11, vertical ripple surfaces 112 and 114-117 are formed in the ends of the respective logs 106-108. In addition, vertical ripple surface 113 is a part of side wall 118 of log 106. Persons versed in the art will appreciate that by providing the vertical ripple surface 113 in the side wall 118 of log 106 a corner may be formed between logs 106 and 107. Holes 119-124 are provided in the logs 106-108 for convenient handling and to facilitate the running of wires and plumbing lines.

As shown in FIG. 12, a log 125 can be provided in a system similar to that shown in FIG. 11 by which an interior log structure can be extended from an exterior

log structure. Replacement of the log 106 in the FIG. 11 system by log 125 would accomplish this as log 125 has a ripple top surface 126 in which a first array 127 of peaks and valleys have axes parallel to the longitudinal axis of the log 125 while a second array 128 of peaks and valleys in the ripple top surface 126 have axis at right angles to the axes of the peaks and valleys in the first array 127. Log 125 has a ripple end surface 129 and two ripple side surfaces 130 and 131 in which the peak and valley axes are vertical. The various log 125 ripple surfaces and similar ripple surfaces in half-blocks as conventionally used to overlap joints in each block layer of buildings permit use in many structure configurations.

The log structures of FIGS. 11 and 12 are intended to be made of concrete. Concrete blocks usually are held in place by generous quantities of mortar, but the logs in FIGS. 11 and 12 can be held in place with a thin mastic coating between the logs.

In addition to the various uses described herein, it is apparent that logs which embody the principles of the subject invention can be used in below grade construction, such as in the construction of basements. Persons versed in the art will appreciate that in such environment it may be desirable to spray a waterproof coating on the exterior of the logs with the coating then covered with a styrofoam layer and the exterior of the logs having been pressure treated with chemicals to retard natural rotting.

Persons versed in the art will appreciate from the foregoing description that not only does this invention provide unique log structures but it also provides a unique method of constructing log structures comprising the steps of forming an upper ripple surface in a first log, forming a lower ripple surface in a second log, and stacking the second log on the first log so that the ripple surfaces interlock substantially without spaces between the ripple surfaces. The construction method includes the further steps of forming top and bottom ripple surfaces in four logs, notching the respective top and bottom ripple surfaces of the respective logs, interlocking the logs at the notches, interlocking the logs at the ripple surfaces, forming holes through the logs so as to be aligned with edges of the notches, forming notches that align with the hole, and filling the holes and notches with which they are aligned with a sealant so as to prevent air flow through the notches where the logs interlock.

Throughout this description reference has been made to ripple surfaces comprised of alternating peaks and valleys. Persons versed in the art will appreciate that in implementing the subject invention the top and bottom ripple surfaces have peaks and valleys which are identical in size, spacing and configuration with each other and in fact may be cut using the same knife edge. Persons versed in the art will appreciate that some modification of the ripple surfaces described herein may be made without departing from the spirit of this invention, such as by using a somewhat different radius at the peaks and valleys and a somewhat different overall height or spacing for the ripple surfaces than those described herein. However, a ripple surface by definition has rounded peaks and valleys which are respectively the mirror image of each other.

What is claimed is:

1. A log structure comprising, in combination, first and second logs which are each defined by a predetermined width and a longitudinal axis and which each

have top and bottom ripple surfaces which are each substantially defined along planes parallel to said longitudinal axis and side walls on opposite sides of said axis connecting said ripple surfaces, said ripple surfaces each including a series of peaks and valleys of substantially the same size, spacing and configuration, said first log being positioned on top of said second log so their axes are at a right angle to each other, a notch in said first log, said first log notch intersecting said first log bottom ripple surface and being of a length to extend between said first log side walls, a depth substantially to said first log longitudinal axis; a notch in said second log, said second log notch intersecting said second log top ripple surface and being of a length to extend between said second log side walls, a depth substantially to said second log longitudinal axis whereby when said notches are placed together said notches interlock and said axes substantially intersect at substantially said right angle, each of said logs having an interior side wall, said first log containing a hole substantially defined by an axis that is substantially perpendicular to said first log top ripple surface plane and is substantially aligned with said second log interior side wall, said second log containing a hole substantially defined by an axis that is substantially perpendicular to said second log top ripple surface plane and is substantially aligned with said first log interior side wall, said first log having a second notch substantially aligned with said second log hole, said second log having a second notch substantially aligned with said first log hole, and a sealant in each of said holes and second notches so as to provide a seal that prevents air flow past said interior surfaces through said interlocked notches.

2. A log structure comprising, in combination, first, second third and fourth logs which are each defined by a predetermined width and a longitudinal axis and which each have top and bottom ripple surfaces which are substantially defined along planes parallel to said longitudinal axis and side walls on opposite sides of said axis connecting said ripple surfaces, said ripple surfaces each including a series of peaks and valleys of substantially the same size, spacing and configuration, each of said peaks and valleys in each of said logs being defined by an axis that is substantially parallel to said longitudinal axis of said log, said peaks and said valleys in said top ripple surface being substantially aligned with said valleys and said peaks, respectively, in said bottom ripple surface; a notch in said first log bottom ripple surface, said first log notch being of a length to extend between said first log side walls, a depth substantially to said first log longitudinal axis and a width substantially equal to the width of said second log; a notch in said second log top ripple surface, said second log notch being of a length to extend between said second log side walls, a depth substantially to said second log longitudinal axis and a width substantially equal to the width of said first log; a notch in said third log bottom ripple surface, said third log notch being of a length to extend between said third log side walls, a depth substantially to said third log longitudinal axis and a width substantially equal to the width of said fourth log; a notch in said fourth log top ripple surface, said fourth log notch being of a length to extend between said fourth log side walls, a depth substantially to said fourth log longitudinal axis and a width substantially equal to the width of said third log; said first log being positioned on said second log so said first and second log notches interlock and so said first and second log longitudinal axes sub-

stantially intersect at right angles; said third log being positioned on said fourth log so said third and fourth log notches interlock and so said third and fourth log longitudinal axes substantially intersect at right angles; said third and fourth logs being positioned on said first and second logs so as to interlock said top ripple surface of said first log with said bottom ripple surface of said fourth log and interlock said top ripple surface of said second log with said bottom ripple surface of said third log; the peaks of the ripple surfaces of said second log extending upwardly to lap the sides of said fourth log.

3. The log structure of claim 2 in which each of said side walls in each said log is substantially defined by a plane substantially perpendicular to said top and bottom ripple surface planes.

4. The log structure of claim 2 in which each of said side walls in each said log is substantially defined by a plane substantially perpendicular to said top and bottom ripple surface planes and intersects said top ripple surface at a valley and intersects said bottom ripple surface at a peak and one of said side walls in each log is an exterior wall, said exterior walls of said first and fourth logs being in substantially the same plane and said exterior walls of said second and third logs being in substantially the same plane.

5. A log structure comprising, in combination, first, second, third and fourth logs that are each defined by a longitudinal axis, each of said logs including top and bottom ripple surfaces that are substantially parallel and each substantially defined along a plane parallel to said axis and two side walls that are each substantially defined by a plane which is substantially perpendicular to said ripple surface planes, the distance between said third log top and bottom ripple surfaces being substantially the same as the distance between said fourth log top and bottom ripple surfaces, each of said ripple surfaces in each log including curvilinear uniformly radiused peaks and valleys substantially defined by axes which are substantially parallel to said longitudinal axis of said log, said first log side wall planes being separated a certain distance, said second log side wall planes being spaced said certain distance, the sum of the distances between said third log side wall planes and said fourth log side wall planes being less than said certain distance, said third and fourth logs being positioned between said first and second logs so said longitudinal axes are substantially parallel and said third and fourth log top ripple surfaces interlock said second log bottom ripple surface and said third and fourth log bottom ripple surfaces interlock said first log top ripple surface, said first, second and third logs each having a side wall in a certain plane and said first, second, and fourth logs each having a side wall in a second plane so that a predetermined space exists between said third and fourth logs; said fourth log side wall which is in the same plane as the side wall of said first and second logs intersecting one of said fourth log ripple surfaces at a valley and intersecting the other of said fourth log ripple surface at a peak and said other fourth log side wall intersecting said one of said fourth log ripple surfaces proximate a peak and intersecting said other fourth log ripple surface proximate a valley, said fourth log top and bottom ripple surfaces each including part of a peak and part of a valley whereby said fourth log may be removed from and forcibly inserted between said first and second logs in a direction substantially at right angles to said fourth log axis while said third log ripple surfaces are interlocked with said first and second log ripple surfaces.

6. The log structure of claim 2 in which said peaks and valleys are of uniformly radiused curvature.

7. A method of constructing a log wall comprising the steps of forming top and bottom ripple surfaces in each of first, second, third and fourth logs, having top and bottom surfaces connected by two side surfaces, each of said logs being defined by a longitudinal axis and having a certain width, said ripple surfaces in each log being defined along substantially parallel horizontal planes which are each substantially parallel to said log longitudinal axis and which each contain an array of peaks and valleys which are each defined by an axis parallel to said log longitudinal axis, said log top ripple surface peaks and valleys being aligned with said log bottom ripple surface valleys and peaks, respectively; notching said top ripple surfaces of said second and fourth logs to receive said first and third logs, respectively; notching said first and third log bottom ripple surfaces to receive said second and fourth logs respectively, said log notches each being of a depth to said log longitudinal axis and a length extending between said log side surfaces and a width to receive said respective logs; interlocking said first and second log notches; interlocking said third and fourth log notches; interlocking said first log top ripple surface with said fourth log bottom ripple surface; interlocking said second log top ripple surface with said third log bottom ripple surface; forming holes through said logs perpendicular to said log ripple surfaces, said holes being aligned with an edge of said notches; forming notches in said logs to align with said holes; and filling said holes and notches aligned with said holes with a sealant so as to prevent air flow through said notches where said logs interlock.

8. A log structure comprising, in combination, first and second logs which are each defined by a predeter-

mined width and a longitudinal axis and which each have top and bottom surfaces which are each substantially defined along planes parallel to said longitudinal axis and interior and exterior side walls connecting said surfaces on opposite sides of said axis, said first log being positioned on top of said second log so their axes are at a predetermined angle to each other and each of said logs is overlapped by said other log in an area having certain dimensions, a notch in said first log, said first log notch intersecting said first log bottom surface and being of a length to extend between said first log side walls, a depth substantially to said first log longitudinal axis; a notch in said second log, said second log notch intersecting said second log top surface and being of a length to extend between said second log side walls, a depth substantially to said second log longitudinal axis whereby when said notches are placed together said notches interlock and said axes substantially intersect at substantially said predetermined angle, a hole in said first log, said first log hole being substantially defined by an axis that is substantially perpendicular to said first log top surface plane and is substantially aligned with said second log interior side wall, a hole in said second log, said second log hole being substantially defined by an axis that is substantially perpendicular to said second log top surface plane and is substantially aligned with said first log interior side wall, a second notch in said first log, said first log second notch being substantially aligned with said second log hole, a second notch in said second log, said second log second notch being substantially aligned with said first log hole, and sealing means in each of said holes and second notches so as to provide a seal that prevents air flow past said interior surfaces through said interlocked notches.

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**EVIDENCE APPENDIX 4**  
**(Appellant's Specification)**

**PATENT**  
**KEGB:003US**

**APPLICATION FOR UNITED STATES LETTERS PATENT**

**for**

**CASING SYSTEM**

**by**

**Walter Karl Stavenjord**

**EXPRESS MAIL MAILING LABEL**

NUMBER EV 323285905 US

DATE OF DEPOSIT September 30, 2003

TITLE: Casing System

#### FIELD OF THE INVENTION

This invention relates to decorative casing trim and, more particularly, to prefabricated casing trim of the kind used to finish structural openings and to construct decorative elements on walls and ceilings of commercial and residential buildings and structures.

#### BACKGROUND ART

Structural openings in the walls of commercial and residential buildings include openings provided to enable the installation of doors, windows, passageways and recessed areas for bookcases, shelves, niches and the like. The framing of such openings during building construction allows sufficient space to enable precise positioning, adjustment and final alignment, then fastening of doors, windows and other elements during installation. Door and window units come in standardized sizes to simplify the installation processes, and are often provided with attached frames that simplify the installation of such units into framed structural openings. However, when such units are installed into structural openings, permanent gaps often appear between the structural framework and the abutting surfaces of the frames surrounding the units as a consequence of precise vertical and horizontal alignment of the units within, and fastening to, the structural openings.

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It is common construction practice to cover the gaps between the framework of structural openings and installed units with trim mouldings, also commonly known and referred to hereinafter as casings. These are usually elongated relatively thin flat pieces of trim bounded by elongated linear side edges and shorter linear end edges. It is also common practice to have decorative profiles cut into at least one linear edge of casing pieces to enhance the visual appeal of the casings. Such decorative profiles can be simple or complex depending on the type of aesthetically pleasing appearance desired. The process of cutting decorative profiles into the edges of casing pieces is commonly known as milling.

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Casing pieces with aesthetically pleasing decorative profiles milled into their linear edges are often used to construct other decorative elements in commercial and residential structures. Such decorative elements include chair railings, wainscoting, borders around the perimeters of walls and ceilings, and the like.

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However, installation of casings to conceal the gaps between installed units and the framework of structural openings, and to produce other decorative design elements on walls and ceilings, is time consuming and requires considerable skill and precision to achieve aesthetically pleasing results.

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There are two common methods for installation of casings. The first method involves fitting together the individual vertical and horizontal casing pieces surrounding a structural opening by means of mitre joints wherein each end of a casing piece is cut precisely at a 45° angle to enable the formation of a tightly fitted and squared 90° corner.

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If the end-cuts are not precisely made with 45° angles, then visually displeasing small gaps will result in the mitred corners that join the vertical and horizontal casing pieces. In these cases, even more construction time is required to fill the gaps with a suitable putty or other filling compound, to allow the filling compound to harden, and then to remove excess filling compound by sanding to eliminate the gaps. As the complexity of the design milled into the linear edge of casing pieces increases, the difficulty of precisely cutting and fitting mitred corners is increased.

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The second method involves installation of square blocks at the top corners around units such as doors and windows in a manner that bridges the gap between the units and the framework of the structural openings. The ends of the individual horizontal and vertical casing pieces are cut at precise 90° angles and are then tightly butted against the corner blocks. However, the second method is also time-consuming and requires considerable skill and precision to ensure that the corner blocks are perfectly squared and vertically aligned. Misalignment or un-squared corners will result in aesthetically unappealing gaps between the casing pieces and corner blocks. These gaps must also be filled with an appropriate filling compound that has been sanded after it has hardened.

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An additional problem encountered when installing decorative casing pieces is that of joining vertical and horizontal casings which have different decorative profiles milled into their edges. One example of such a situation is the joining of a vertical casing piece to a horizontal casing piece installed in a vertical orientation at the juncture of a wall with a floor. In these situations, the decorative profile milled into the linear edge of one casing piece must be traced onto a paper pattern that is then transferred to the receiving edge of a casing piece with a different decorative profile milled into its linear edge. The first decorative profile is then cut into the second decorative profile by means of a coping saw. This process requires considerable skill, precision, time and patience in order to produce tightly fitting joints between adjoining casing pieces.

Because of their decorative properties, casings are also commonly used for installation of aesthetically appealing chair rails, wainscoting and other decorative elements on walls and ceilings. The vertical and horizontal casing pieces used to create such decorative trim work are abutted and joined by means of mitre joints. Consequently, the installation process for casing pieces used for decorative trim work is also time consuming and requires skill, precision and patience to produce tightly fitting squared joints.

There is therefore a need for an improved system for assembling and installing casing pieces that avoids at least some of the problems indicated above.

#### SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention, at least in its preferred forms, to simplify the process of installing decorative casing pieces to cover the gaps between the framing of structural openings and installed amenities such as doors, windows and the like.

According to one aspect of the present invention, there is provided a casing system, comprising a generally flat first casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of the linear side edges and at



least one of the linear end edges being provided with a continuous decorative profile; and a second casing piece having an outer face, an inner face, a pair of linear side edges and a pair of linear end edges, at least one of the linear end edges being provided with a reverse image of the continuous decorative profile; whereby the first casing piece is adapted to be  
5 joined to the second casing piece by engagement of the continuous decorative profile of the first casing piece with the reverse image of the decorative profile of the second casing piece.

By the term decorative profile, I mean that a side edge or end edge (when viewed in  
10 cross-section) has a sloping surface extending from the outer face of the piece to the inner face of the piece. The sloping surface has a non-linear profile that preferably has at least two stages, each provided with a decorative profile. The decorative profile may be one of, or a combination of, a straight linear surface, a curved convex surface, or a curved concave surface.

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It is important to note that the decorative profile, and the reverse image of the decorative profile, are both pre-formed on the first and second decorative pieces as the pieces are manufactured and before they are sold and used. The present invention therefore requires no shaping and precision cutting of decorative surfaces onto casing pieces as such pieces  
20 are being installed in buildings and the like.

While it is preferred to provide a decorative profile on both side edges and both end edges of the first casing piece of the present invention, this is not essential. The system can still be used to advantage if the first casing piece is provided with the decorative  
25 profile on at least one side edge or at least one end edge, although the versatility of the system is then reduced.

Similarly, while it is preferred to provide the reverse image of the decorative profile on both end edges of the second casing piece, this is not essential and the reverse image may  
30 be provided on one end edge only. The side edges of the second casing piece may have no decorative profile (if desired) or a different decorative profile from that used on the

first casing piece, although it is preferred to provide both side edges of the second casing piece with the same decorative profile as that used on the first casing piece.

5 The present invention, at least in its preferred forms, can provide a system for producing and installing decorative casing pieces that does not require precise measurement and cutting of mitre joints to tightly fit adjoining or abutted casing pieces together, and thereby greatly reduces construction time required for installation of casings in residential and commercial buildings, yet enables fabrication of tightly fitted and aesthetically pleasing joints between abutted and joined casing pieces.

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The invention also relates to a kit of parts forming a casing system, preferably with instructions for assembly of the parts. The instructions include options for assembly as explained herein.

15 Other aspects and features of the present invention will become apparent to those skilled in the art upon review of the following description of specific embodiments of the invention that are described in conjunction with the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

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FIGs. 1A, 1B, 1C and 1D show different views of a first casing piece according to a preferred embodiment of the invention, Fig. 1A being a side elevation from one end of the piece, Fig. 1B being a top plan view, Fig. 1C being a side elevation from one side of the piece, and Fig. 1D being a perspective view from above and to one side;

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FIGs. 2A, 2B, 2C and 2D show different views of a second casing piece according to a preferred embodiment of the invention, Fig. 2A being a side elevation from one end of the piece, Fig. 2B being a top plan view, Fig. 2C being a side elevation from one side of the piece, and Fig. 2D being a perspective view from above and to one side;

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FIGs. 3A, 3B, 3C and 3D show ways in which the pieces previously shown can be fitted together, Fig. 3A being an exploded side elevational view, Fig. 3B being an exploded top plan view; Fig. 3C being a perspective view of assembled pieces, and Fig. 3D being a view similar to Fig. 3C, but with the pieces aligned differently;

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FIG. 4 is a perspective view of a window opening showing casing pieces according to the invention assembled therearound, with some of the pieces shown in exploded positions;

FIG 5. is a perspective view of casing pieces according to one aspect of the present  
10 invention installed at one side of a door opening;

FIG. 6 is a front elevation of casing pieces according to the present invention used to produce wainscoting on a wall;

15 FIGs. 7A, 7B and 7C show three aspects of yet another preferred embodiment of this invention for simplified joining and abutting individual casing pieces with different amounts of decorative profiles milled into their linear edges, Fig. 7A being a side elevation, Fig. 7B being a top plan view and Fig. 7C being a perspective view;

20 FIG. 8 is a side elevation showing another preferred embodiment of this invention illustrating modifications to the linear edges and end edges of the casing pieces to simplify the installation of decorative casing at the junctures of walls, floors, and structural openings encompassing door frames.

## 25 DETAILED DESCRIPTION OF THE INVENTION

First of all, it should be noted that, throughout the several views of the accompanying drawings, similar elements of different parts of the equipment are identified by the same reference numerals for the sake of simplicity and ease of understanding.

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The decorative casing system of the present invention can be used for quickly and easily covering the gaps between the framework of structural openings and installed units, and for creating decorative features on walls and ceilings of commercial and residential structures.

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In its simplest form, the invention consists of two casing pieces. An example of a first casing piece (casing piece A) is shown in Figs. 1A to 1D and an example of a second casing piece (casing piece B) is shown in Figs. 2A to 2D. These pieces are designed to fit and work together.

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As shown in Figs. 1A to 1D, casing piece A is in the form of an elongated flat strip of material such as wood or plastics. The piece has a generally flat top surface 2, a generally flat bottom surface 3, relatively short linear end edges 4 and elongated linear side edges 5. The piece has a continuous decorative design profile 1 milled into the two linear edges 5, and the two end edges 4.

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As shown in Figs. 2A to 2D, casing piece B has a generally flat top surface 2, a generally flat bottom surface 3, relatively short linear end edges 4 and elongated linear side edges 5. The two linear side edges 5 have the same decorative profile 1 as that of the side edges 5 of casing piece A. However, the linear end edges 7 of casing piece B have a milled decorative design profile 6 that is the exact reverse image of the design 1 of the end edges 7 of casing piece B. The surfaces the reverse profile 6 milled into the end edges 7 of casing piece B are engagement surfaces that contact and engage the equivalent surfaces of the continuous design profile 1 milled into the linear edges 5 and/or end edges 4 of the type of casing piece A. This is exemplified in Figs. 3A to 3D.

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Accordingly, the engagement surfaces of the decorative design reverse profile 6 at the end edges 7 of casing piece B contact and tightly engage the continuous decorative design profile 1 milled into the end edges 4 of casing piece A as shown at AA in FIG. 3B, to provide extended conjoined length of casing with an uninterrupted continuous decorative design profile along its linear and end edges.

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Alternatively, the engagement surfaces of the decorative design reverse profile 6 at the end edges 4 of casing piece B, may contact and tightly engage the decorative design profile 1 milled into the linear side edges 5 of casing piece A as shown at point BB in FIG. 3B, to provide a tightly fitting and aesthetically pleasing precise 90° joint between casing pieces A and B. Referring to Fig. 3B, it is preferred to align the outside linear margin 2a of the top surface 2 of casing piece B with the end top margin 2a of casing piece A to produce a tightly fitted and aesthetically pleasing 90° joint that has the appearance of a precisely constructed mitre joint as shown in FIG. 3C.

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Another feature of this invention is that the point of contact between the end edge 7 of casing piece B and linear edge 5 of casing piece A can be made at any point along the length of casing piece A, or at any point along the length of an extended casing piece made up of several conjoined casing pieces A and B as shown in FIG. 3D. Furthermore, the point of contact between the end edge 7 of casing piece B can be made with the linear edge 5 of another identical casing piece B (not shown).

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Such alignment, contact and engagement of decorative design profiles milled into linear edges of casing pieces with their exact reverse profiles milled into the end edges of other casing pieces can be carried out quickly and simply without the need for the time and skill required for precise measurement, cutting and fitting of two individual casing pieces to surround window or door units, or the like, installed into structural openings, and for decorative designs on walls and ceilings and, thus, represents a significant advantage over the current practices.

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Precise measurements and mitre cuts into the ends of the casing pieces in order to tightly fit them around installed units, such as windows and doors, are not required with the present invention. An example of this is shown in FIG. 4 which is an illustration of how the present invention can be used to quickly and simply install decorative casing pieces to cover the gaps between a structural opening and a window frame of an installed window unit. An appropriate length of casing piece A that has a continuous decorative design

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milled into its linear edges and end edges, is selected and placed in a horizontal orientation in a manner that contacts the vertical surfaces of the top part of the window frame and the framework of the structural opening into which the window was installed and bridges the gap between top part of the window frame and the framework of the structural opening. The horizontal positioning of casing piece A is then levelled into a horizontal with the aid of an appropriate instrument (e.g. a spirit level) after which, the casing piece A is fastened to both the window frame and the framework of the surrounding structural opening. The next step is to select an appropriate length of casing piece B that has a decorative reverse image 6 milled into its end edge 4 that corresponds with the continuous decorative profile milled into the edges of the installed casing piece A. Casing piece B is installed along one vertical edge of the installed window to cover the gap between the window frame and the surrounding framework such that the end edge 4 of casing piece B is contacted with the linear edge 5 of casing piece A such that the outside linear margin 2a of the top surface of casing piece B is aligned with the end top margin 2a of casing piece A, then engaged to produce a tightly fitted and aesthetically pleasing 90° joint that has the appearance of a precisely constructed mitre joint as shown in FIG. 3C. Casing piece B is then securely fastened to the window frame and surrounding framework. An additional casing piece B is attached vertically on the other side of the installed window in a similar fashion. The final step is to attach another casing piece A horizontally at the base of the installed window by first contacting its upper linear edge 5 with the end edges 4 of the two vertically installed casing pieces B, then fully engaging and tightly abutting the casing piece A against the two vertically installed casing pieces B, after which the additional casing piece A is fastened to the lower edge of the window frame and surrounding framework.

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The same approach may be used to install decorative casing to cover the gaps between a structural opening and the frame of an installed door and other such units, and at the juncture of walls with floors. If so desired, the casing pieces A selected for securing to the top parts of the door frame may be longer than the structural opening so that the ends of the casing piece A extend beyond the contact points of the two vertical casing pieces B as shown in FIG. 3D. This produces an appealing design effect.

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It is not necessary to install casing pieces A horizontally and casing pieces B vertically in order to practice the invention. The same aesthetically pleasing results can be produced by installing casing pieces A along the vertical sides of installed units and installing casing pieces B along the horizontal sides. If casing pieces A are installed in a vertical orientation, they can be selected, if so preferred, to extend a predetermined distance beyond the top of structural framework. In this case, a casing piece B will be fastened to the top part of the unit's frame and the surrounding framework and tightly abutted against the two vertical casing pieces A, and a second casing piece B will be used to cap the two vertical casing pieces A as shown in FIG.5.

Casing pieces A and B may be additionally used to produce aesthetically pleasing functional designs on walls, i.e. for creating items such as chair railings and wainscoting as illustrated in FIG. 6. In such cases, an upper horizontal element of wall design features, such as chair rails and wainscoting, is attached to a vertical casing piece which has a decorative design profile 1 milled into its linear edge 5 and is surrounding an installed element such as a window or door, by means of contacting and engaging a horizontally orientated casing piece B by its end edge 7 with the reverse image 6 with the linear edge 5 of the vertical casing piece. The upper horizontal element of the wall design feature is extended to the next vertically installed casing with the same continuous decorative design profile milled into its linear edge 5, by conjoining casing pieces A and B which have corresponding positive and reverse design profiles milled into their end edges. If so desired, vertical elements can be added to wall design features such as chair rails and wainscoting by adjoining selecting lengths of casing pieces B by their end edges 7 to the linear edges 5 of upper horizontal casings and casings used at the junctures of walls and floors.

It should be noted that this invention is not restricted to a particular type or complexity of the design profiles milled into the linear and end edges of casing pieces. Rather, it is important that a selected design profile is continuously formed into the linear edges of casing pieces, and that preferably the same design profile is milled into some but not all

of the end edges of the casing pieces. It is necessary for some of the end edges of the casing pieces to be milled with the exact reverse image of the continuous design profile, and it is this feature that provides the means by which casing pieces can be easily, simply, and quickly adjoined or abutted together to produce tightly fitting aesthetically pleasing joints and corners.

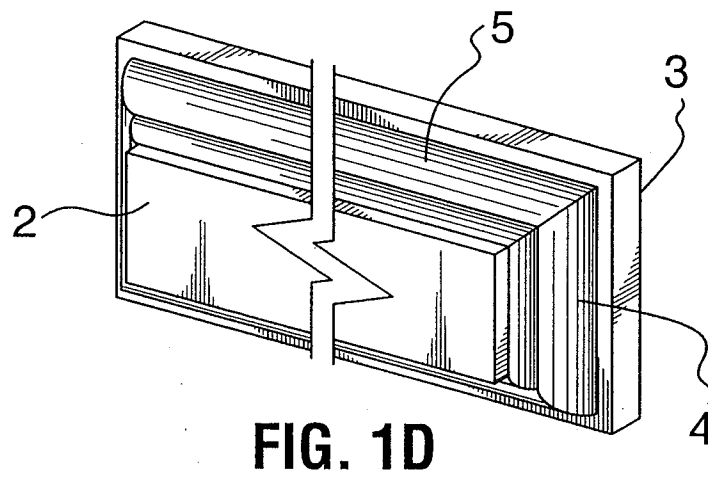
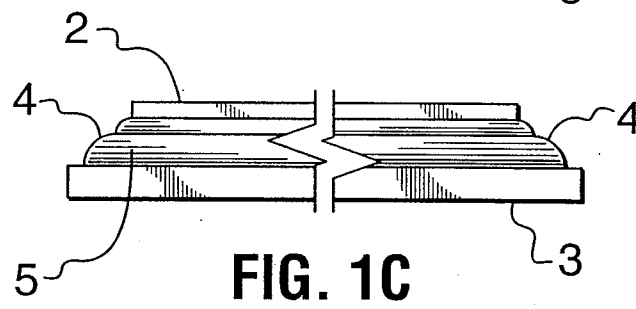
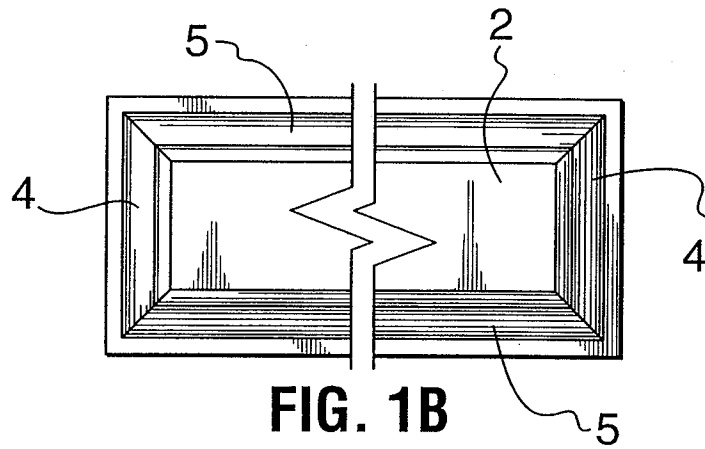
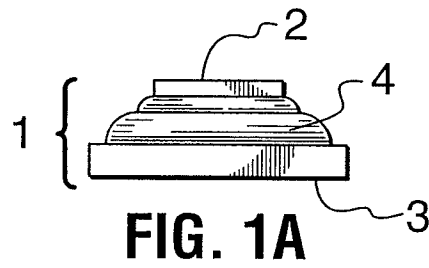
Another embodiment of the present invention relates to a method of further enhancing the aesthetic appearance of the continuous decorative casing systems by increasing the dimensional thickness of selected casing pieces of the type referred to as casing pieces A, by stacking a second type of casing piece A wherein the outer width of the second casing piece A will fit within the top surface margins for the first casing piece A as shown in FIGS. 7A, 7B, and 7C, said enhanced casing piece A referred to hereinafter as a raised casing piece A. FIG. 7A is an end view of the raised casing piece A, FIG. 7B is a top view, and Fig. 7C is a perspective view of the raised casing piece A with an abutting casing piece B. It is necessary that the continuous decorative profile milled into the linear and end edges of the lower section 20 of the raised casing piece A matches exactly the reverse image milled into the end edges 6 of casing pieces that will abut or adjoin to the raised casing piece A. The continuous decorative profiles milled into the raised linear and end edges of raised casing pieces A can match, but do not have to match the continuous decorative profiles milled into the lower linear and end edges of the raised casing edges A. It is only essential that the decorative profiles milled into the lower linear and end sections of the raised casing pieces A match the reverse images milled into the ends of casing pieces that will be abutted to the raised casing pieces A. It is preferred that raised casing pieces A are used for installation at the upper horizontal junctures of installed amenities with framework of structural openings such as doors and windows. Alternatively, raised casing pieces A can be produced as squares for installation of aesthetically pleasing designs on walls and ceilings wherein casing pieces B are abutted into two or more of the sides of the raised casing pieces A.

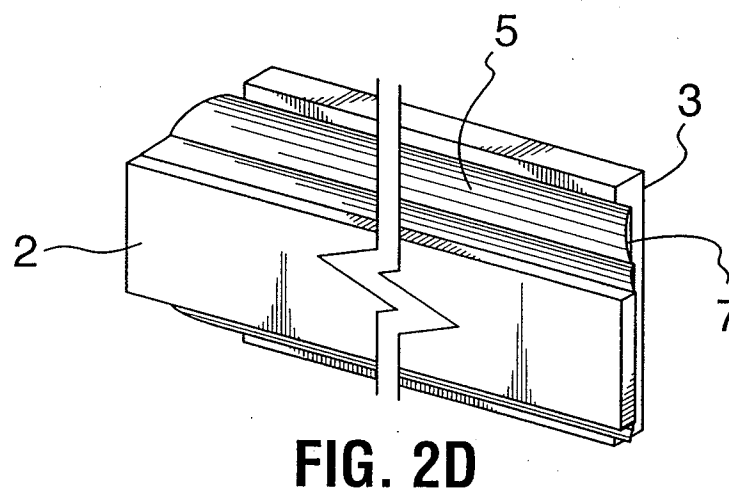
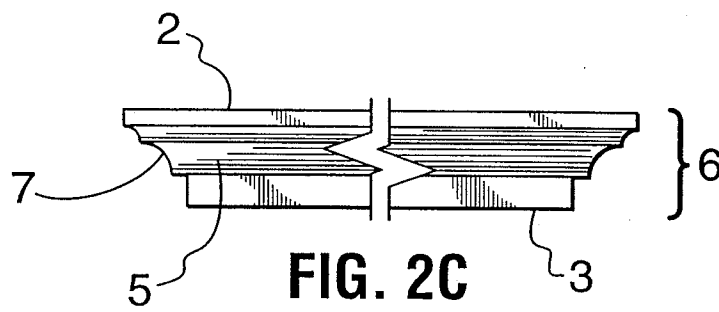
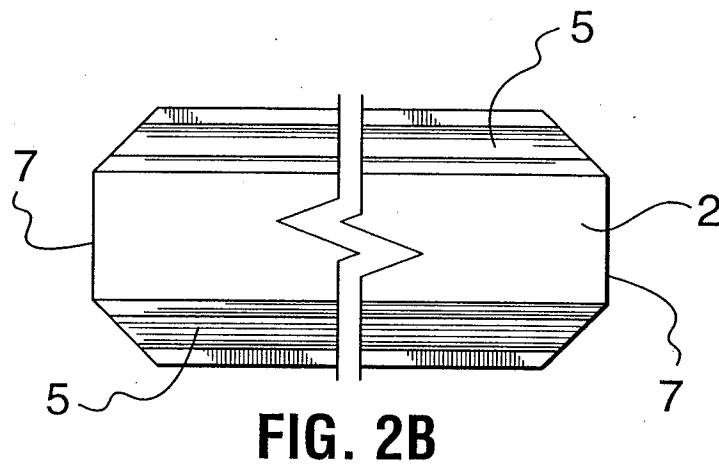
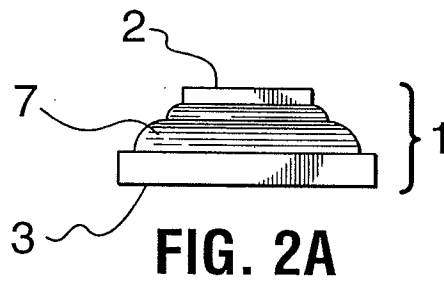
The preferred embodiments of this invention exemplified in Figs. 1A to 1D and Figs. 2A to 2D can be modified to provide alternative choices for attaching casing pieces with

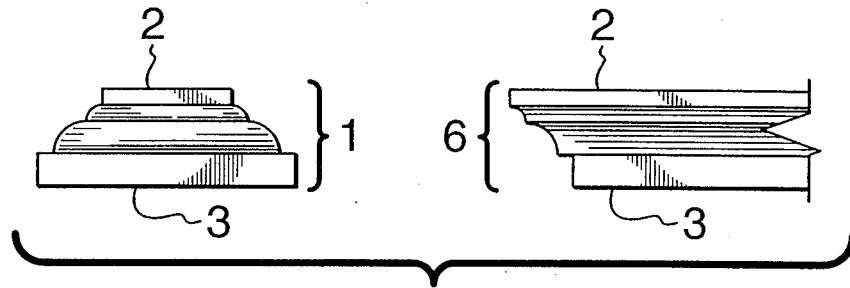


continuous decorative edges to door frames and at the junctures of walls and floors, and walls and ceilings wherein one linear edge 8 may not be milled with the design but left with 90° corners between the top, side, and bottom edges as shown in FIG. 8. The straight linear edge 8 of such a casing piece shown in FIG. 8 can be used to contact the floor or ceiling while the linear edge with the continuous design 5 contacts the wall. It is also an option to have one end edge 9 of the casing pieces without a positive or reverse image of a decorative profile milled, but rather, left with 90° corners between the top, side, and bottom edges. Such a casing piece can be used to vertical installation to cover the gaps between installed door frames and the surrounding structural framework, and to contact and abut the floor with the straight un-milled end edge 9 as shown in FIG. 8.

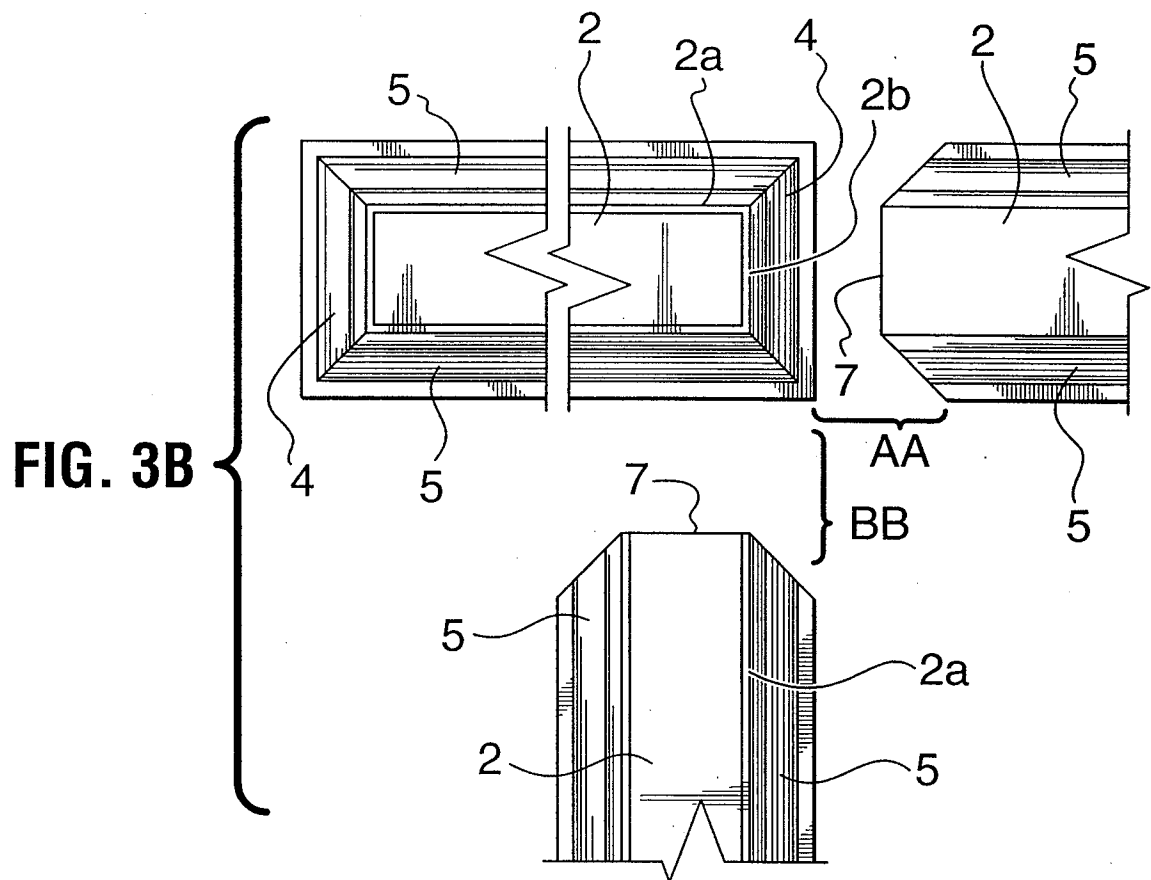
While the preferred embodiments have been shown, illustrated and described, it will be apparent to those skilled in this field that various modifications can be made in these embodiments without departing from the spirit of the present invention. Therefore, while the following claims define the embodiments in a particular way, any combination of one or more of these embodiments is contemplated according to the present invention.

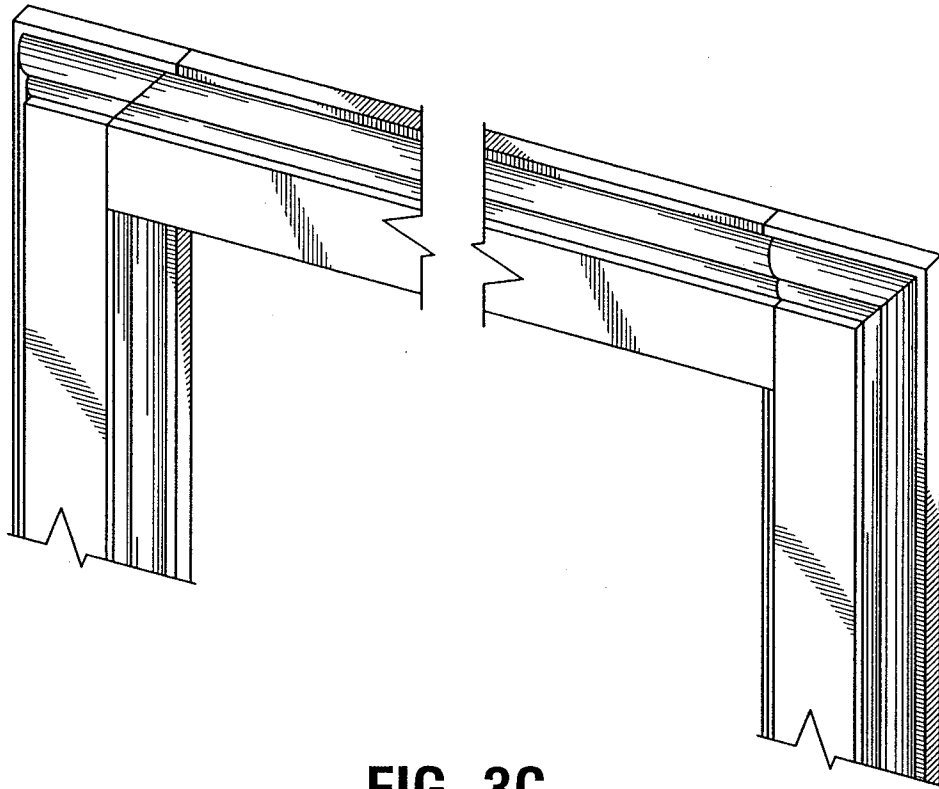




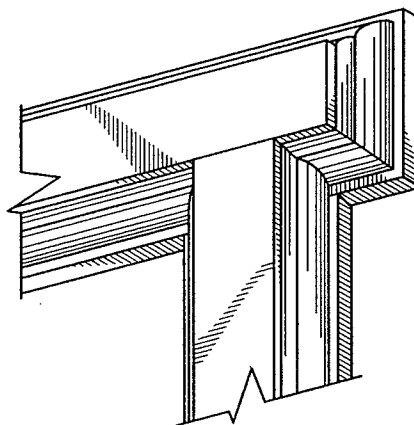


**FIG. 3A**



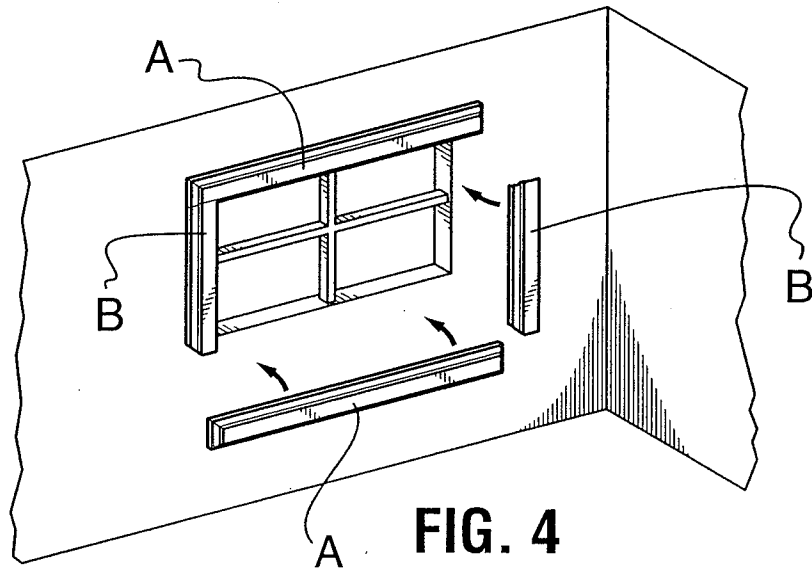


**FIG. 3C**

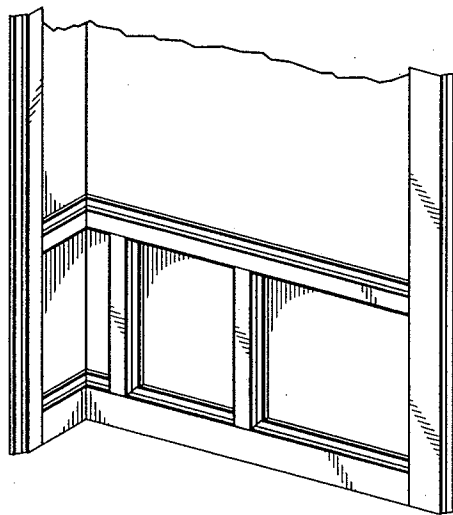


**FIG. 3D**

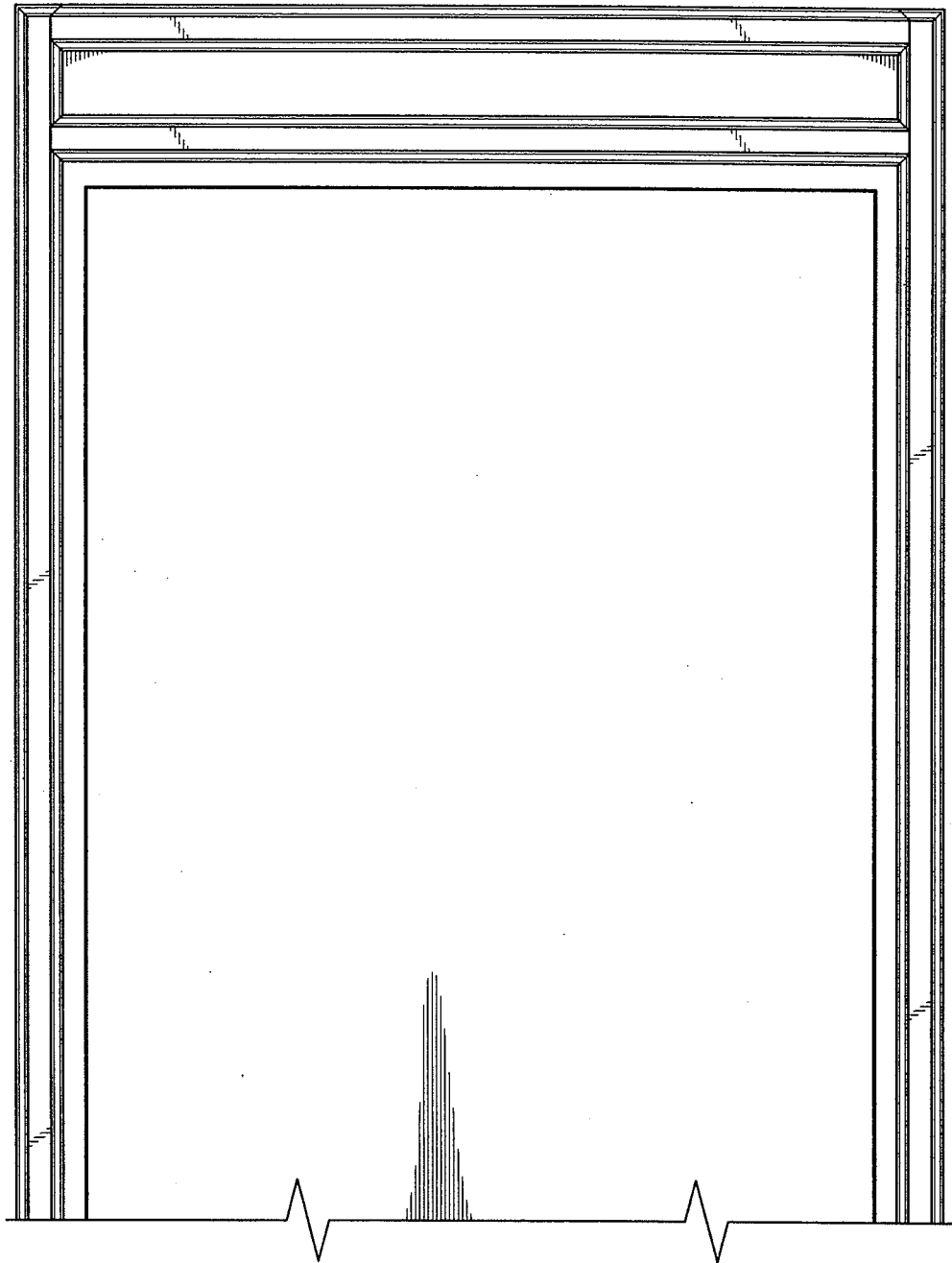
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**FIG. 4**



**FIG. 6**



**FIG. 5**

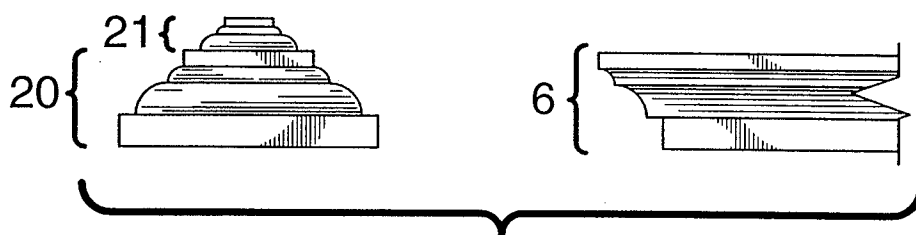


FIG. 7A

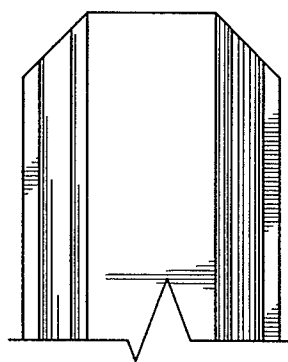
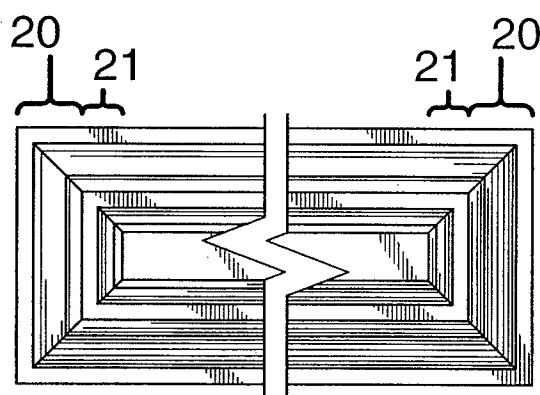
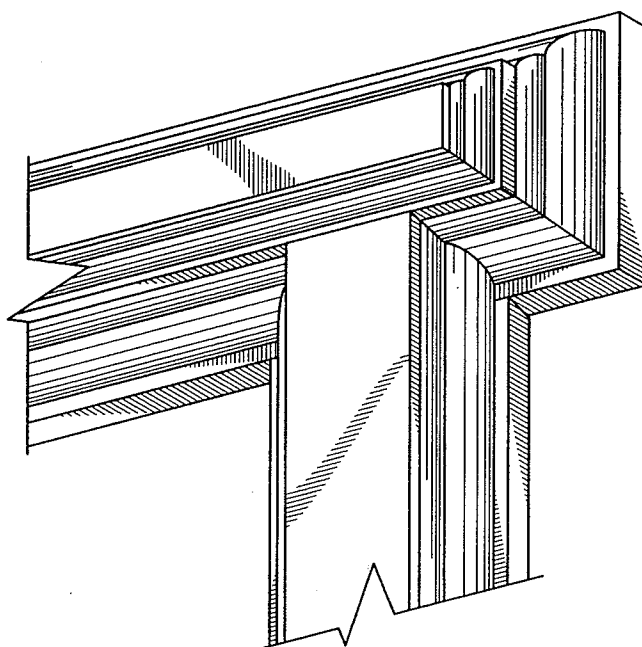
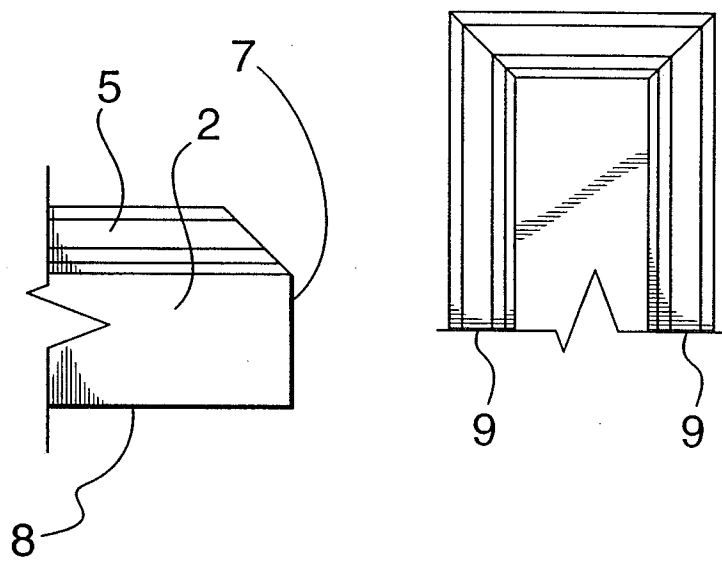


FIG. 7B





**FIG. 7C**



**FIG. 8**

**X. RELATED PROCEEDINGS APPENDIX**

[NONE]